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The day-to-day reliability of resting metabolic rate

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THE DAY-TO-DAY RELIABILITY OF

RESTING METABOLIC RATE

by

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ABSTRACT

The Day-To-Day Reliability Of Resting Metabolic Rate

by

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This purpose of this study was to determine the day-to-day reliability of resting metabolic rate. 18 college students, (mean age 22 ± 3.6 yrs, height 65.78 ± 22.0 in., body mass 68.05 ± 10.34kg, percent body fat 23 ± 6.5%) gave informed consent to participate in the study. RMR was measured on four separate days over a period of 14 days. Height, weight, and resting heart rate were also recorded on each testing day. Body composition was assessed on the first day. Energy intake, energy expenditure, and caffeine intake were controlled between days. Each test was done between 7 and 9 AM each morning, and RMR was measured by open circuit spirometry over a 35-minute period. Reliability was assessed using an Intraclass Correlation Coefficient. The reliability across days was R= 0.97. The overall mean VO_2 was 3.35 ± .177 ml/kg/min. The mean VO_2 was 3.34 ± .35 ml/kg/min on day one, 3.29 ± .29 ml kg^{-1} min^{-1} on day two, 3.36 ± .37 ml kg^{-1} min^{-1}on day three, and 3.37 ± .50 ml kg^{-1} min^{-1}on day four. This study demonstrates that under controlled conditions, resting metabolic rate is a very stable measurement. Therefore, under these conditions, a single RMR measurement can be considered an estimate of the individual's true RMR, and confidence can be placed in that measurement.

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CHAPTER 1

INTRODUCTION

Resting metabolic rate is a common measurement used by physicians, clinicians, researchers and fitness professionals. The ability to measure an individual's resting energy requirement has grown in interest primarily because obesity has become a major health concern individually, nationally and internationally. Obesity is considered to be an epidemic (www.cdc.gov). The financial impact of weight loss plans, programs, books, supplements, and pharmaceuticals has become a large part of our gross national product and has a significant economic impact in the United States (Sharkey, 1997). Many individuals excuse obesity as a pathological condition, usually an under active thyroid gland or a depressed resting metabolic rate. A low resting metabolic rate (RMR) may result in an increase in body weight unless counteracted by diet and exercise.

It wasn't until 1960 that it became possible to provide adequate nutrition intravenously (Bursztein, Elwyn, Askanazi, & Kinney, 1989). Since that time numerous studies supported the finding that providing adequate nutrition to patients recovering from debilitating sickness greatly improved their survival rate (Bursztein, et al., 1989). For example, prior to 1960 a patient with multiple abdominal fistulas had an 80-90% mortality rate. After the introduction of nutrition support the mortality rate dropped to 10-20% (Bursztein et al., 1989). The increased survival rate seen in critically ill patients receiving nutritional support has emphasized the need for accurately measuring the

energy expenditure of patients (Bursztein et al., 1989). An overestimation of 500 to 1500 kcal/day commonly occurs when estimating rather than measuring the patients' energy expenditure (Bursztein et al., 1989). Overestimation occurs because patients' energy needs may vary greatly throughout the course of a treatment (Bursztein et al., 1989). For example, severe burns can cause the energy expenditure in a patient to double (Bursztein et al., 1989). Anxiety, pain, elevated core temperature and many other factors can also increase the energy needs of a patient (Bursztein et al., 1989). Actual resting energy requirement needs to be measured. One measurement of RMR is by indirect calorimetry, which Bursztein (1989) recommends is needed in an intensive care unit. Presently, it is unknown if a single measurement of resting metabolic rate is a good estimate of the patient's true requirements, or whether multiple measurements need to be taken across several days.

Purpose of the Study

The purpose of this study was to determine the reliability of resting metabolic rate (RMR) across several days. If RMR is reliable across days, then a single measurement would be a good estimate of the true RMR. However, if RMR significantly varies from day-to-day then multiple measurements may be needed.

Statement of the Problem

Research supports that to get a valid RMR measurement the subject needs to be in a rested, post-absorptive state with no exercise having been done 12-24 hours prior to the measurement (Poehlman, 1989). The validity of RMR is also based on the within-subject variations of RMR across days. Whether a subject acts as their own control in a

longitudinal study or are paired with a control in a cross sectional study, the metabolic response from the treatment is a function of the intra-individual variability of RMR (Murgatroyd, Davies, & Prentice, 1987). Determining the reliability of RMR is necessary to separate biological variations from experimental treatment effects. Resting metabolic rate studies that examine changes in RMR pre and post treatment could be misinterpreted without knowing how reliable RMR is across days. Miles and associates (1992) documented the possibility of misinterpreting RMR when they examined the within-subject variation on the thermic effect of a meal (Miles, Wong, Rumpler, & Conway, 1992). Although it was not the purpose of their study, they also noted the within-subjects variation during the pre-meal one-hour RMR measurement. They concluded if a RMR measurement from the subject's previous day was used to correct for their thermic effect of food data then an error would have occurred (Miles, et al., 1992). This study points out that more laboratories need to determine the day-by-day reliability of RMR.

Because RMR is used in so many settings: research, weight loss programs, exercise studies, and clinical conditions, it is mandatory to determine if a good estimate of the true RMR can be determined from a single measurement. The purpose of this study was to determine the reliability of RMR from day-to-day.

Need for the Study

Studies give conflicting results on the long-term effects that exercise has on RMR (Sjodin, et al., 1995; Ballor & Poehlman, 1992; Poehlman, Melby, & Badylak, 1988). Some of the differences are a result of differing methodology between laboratories, and also differences in protocols and subjects. Factors such as; energy intake, mode of exercise, exercise intensity and duration, body composition changes, energy expenditure

vs. energy intake, fitness level of the subjects, and longitudinal vs. cross sectional studies make some research difficult to compare. Inconsistent results between studies may also be due to the lack of knowledge about the reliability of RMR.

The reliability of RMR cannot be determined from many of these past studies because the few studies that have examined daily fluctuations in metabolic rate measured either basal metabolic rate (BMR) or 24-hour energy expenditure. In addition, most have used very small sample sizes, with many studies using only one subject. Finally, the testing conditions during BMR and 24-hr energy expenditure studies are not similar with the way RMR is measured in most laboratories. During BMR and 24-hr energy expenditure studies, subjects spent the night in the lab or a respiratory chamber prior to the measurement. In these studies it is unknown what the reliability would have been if the subjects returned to the laboratory on each day of testing similar to studies that measure RMR.

Reliability studies on basal metabolic rate and 24-hour energy expenditure generally report that both are reliable measurements (Anderson, Garby, & Lammert, 1990; Astrup, Thorbek, Lind, & Isaksson, 1990; DeBoer, Van Es, & Vogt, 1987; Henry, Hayter, & Rees, 1989; Murgatroyd, Davies, & Prentice, 1987; Toubro, Christensen, & Astrup, 1995; White, et al., 1996). Henry, Hayter, and Rees (1989) reported a summary of sixteen within-subjects studies examining the variability in basal metabolic rate. The variability was measured from 19 days to as long as 2 ½ years. The number of measurements taken during the testing period vary greatly as well. One study reported five measurements over an eleven-day period (Henry, et al., 1989) while another study reported 171 measurements over a one-year period (Henry, et al., 1989).

Most these studies report their results as coefficients of variation (CV), which is the standard deviation, expressed as a percentage of the mean. The CV is a measure of reliability, and commonly used when reporting the reliability of athletic events or performance tests (www.sportsci.org/resource/stats/stdev). A small value represents a small CV with most repeated tests having a CV between 1-5% (www.sportsci.org/resource/stats/stdev). The lowest coefficient of variation (CV) reported in these studies was 0.97% with the highest approaching 6.2% (Henry, et al., 1989). The small CV reported in these studies suggests that basal metabolic rate is reliable across days (Henry, et al., 1989).

Most of the reliability studies on 24-hour energy expenditure measured energy expenditure for 24 hours on two separate days, one to two weeks apart (DeBoer, et al., 1987; Murgatroyd, et al., 1987; Toubro, et al., 1995; White, et al., 1996). One study measured 24-hour energy expenditure once a month for ten months (Anderson, et al., 1990). The lowest coefficient of variation (CV) reported in these studies was 1.5% with the highest being 3.2%. (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, Lammert, & Nielsen, 1984; Murgatroyd, et al., 1987; Rumpler, Seale, Conway, & Moe, 1990; Soares, & Shetty, 1986, Toubro, et al., 1995; White et al., 1996). The number of subjects ranged from four subjects (Anderson, et al., 1990) to 39 subjects (White, et al., 1996). The small CV reported in these studies suggests that basal metabolic rate and 24-hour energy expenditure are both reliable measurements.

Since basal metabolic rate and 24-hour energy expenditure are reliable, an assumption could be made that RMR is also reliable. However, for the reasons stated above, it is difficult to determine whether these results would be the same when measuring RMR. The reliability of RMR across several days is needed because it has not been clearly

determined using the standard RMR protocols. The reliability of RMR impacts previous and future RMR research.

Design of the Study

Eighteen college students volunteered to participate in the study. RMR was measured on four separate days over a 14-day period. Body mass, and resting heart rate were recorded on each testing day. Body composition and height was assessed on the first day. Energy intake, energy expenditure, and caffeine intake were monitored and controlled between days. Each test was done between 7 a.m. and 9 a.m. each morning, and RMR was measured by open circuit spirometry for a 35-minute period. Reliability was calculated using an Intraclass Correlation Coefficient, and a repeated measures ANOVA was used to examine if RMR was significantly different from day-to-day (Baumgartner, Strong, & Hensley, 2002).

Definition of Terms

1. Basal metabolism, or the basal metabolic rate (BMR), is the minimum amount of energy required to continue the various cellular processes necessary for maintaining the body's physiological activities under post-absorptive and completely rested conditions. It represents the lowest rate of energy expenditure (Williams, 1988).

2. Resting metabolism, resting metabolic rate (RMR), resting energy expenditure, and resting oxygen consumption are different terms that represent the same thing. They all represent the BMR plus any additional energy expenditure resulting from

environmental conditions and sedentary activity (Poehlman, 1989). RMR is assumed to be 5-10% higher than BMR (Toubro, et al., 1995).

3. Twenty-four hour energy expenditure is composed of four components: the sleeping metabolic rate, the energy cost of arousal, the thermic effect of food, and the energy cost of physical activity (Ravussin, & Bogardus, 1989). RMR contributes about 60-75 % of 24-hour energy expenditure (Poehlman, 1989). 24-hour energy expenditure is measured in a whole body direct or indirect calorimeter (Anderson, et al., 1990).

4. Dietary-induced thermogenesis (DIT), the thermic effect of a meal (TEM), and the thermic effect of feeding (TEF) refer to the increased energy expenditure above the RMR after the ingestion of a meal. It includes the energy cost of ingestion, digestion, absorption, metabolism, and storage of food in the body (Poehlman, 1989).

5. Thermic effect of activity (TEA), or the thermic effect of exercise (TEE), is the additional energy expended above the RMR and TEM due to all physical activity and muscular activity, it includes shivering and fidgeting, as well as purposeful physical exercise (Poehlman, 1989).

6. Post-exercise oxygen consumption, post-exercise metabolism, or excess post-exercise oxygen consumption refers to the elevation in oxygen consumption above RMR following a bout of exercise (Bahr, & Maehlum, 1986).

7. Direct Calorimetry is a method used to measure metabolism through the direct measurement of heat production (Brooks, Fahey, & White, 1996). Direct calorimetry is measured by placing a subject in a specially designed well-insulated chamber. The subject's body heat warms the air, and water evaporating from the lungs and skin moistens the air. The air is then drawn through a water-absorber to collect and measure the amount of water; this allows for calculation of evaporative heat loss. The air then passes through the heat exchanger where it is cooled to its original temperature before being re-circulated into the room (Stanier, Mount, & Bligh, 1984). Heat production from the subject is then calculated. Various precautions are needed to obtain accurate and reproducible results making the apparatus elaborate and not commonly available or used (Stanier, et al., 1984).

8. Indirect Calorimetry is a method used to estimate heat production by determining oxygen consumption and carbon dioxide production (Brooks, et al., 1996). It is used to determine the energy and oxygen cost of exercise and rest. Indirect calorimetry uses either open or closed circuit spirometry. This study used open circuit spirometry where the subject breathes atmospheric air and the expired air is analyzed.

9. Closed-Circuit Spirometry is a method of indirect calorimetry where the subject breathes and re-breathes from a pre-filled container or spirometer of medically pure oxygen (McCardle, Katch & Katch, 1986).

10. Open-Circuit Spirometry, used by most exercise and nutrition laboratories in the Unites States, is a method of indirect calorimetry where the subject breathes ambient air that has a constant composition of 20.93% oxygen, 0.003% Carbon dioxide, and 79.04% nitrogen (McCardle, et al., 1986).

Limitations & Assumptions

The limitations and assumptions of this study were:

1. the equipment used for the RMR measurement was the Vista metabolic system. This system oscillates within ±3% of the actual value, therefore, a VO_2 value of 300 ml/min, is between 291-309 ml/min (Huszcza, A., personal communication, October, 10 & 14, 2001) (see Appendix D.1&2).

2. subjects were asked to refrain from exercise twelve hours prior to each testing day. It was assumed that they complied with this request.

3. subjects were asked to arrive at the laboratory in a fasted and rested state each morning their RMR was measured. It was assumed that they complied with this request.

4. subjects completed questionnaires describing their exercise, eating habits, and weight history, as well as, medications and supplements ingested. It was assumed that they completed the questionnaire honestly.

5. it was assumed that all equipment used was accurately calibrated and properly used.

CHAPTER 2

RELATED LITERATURE

Measurement of Metabolism

Researchers have been intrigued with the measurement of metabolism for centuries. The measurement of metabolism can be traced back to the year 1627 (Bursztein, Elwyn, Askanazi, & Kinney, 1989). Chemist William Boyle developed a device to generate a vacuum; with which he evacuated glass containers and examined combustion and metabolism of foodstuffs in the containers (Bursztein, et al., 1989). In the process he found that a bird could not survive and a candle could not burn when placed in an evacuated container. Boyle and his associates proposed that removing the air in the container deprived both the candle and the bird of some necessary gaseous element. He concluded that this gaseous element was needed for the support of the flame as well as the bird's life. Investigations following this discovery showed that introducing a green plant in the evacuated container would allow a flame to burn or an animal to live for a period of time (Bursztein, et al., 1989). Without realizing the full significance of these observations, these preliminary studies laid the foundation for the numerous advances in metabolic measurement that would follow.

In 1754, Joseph Black, a medical student, became interested in a previous discovery that noted when bladder stones were treated with acid they would release a gas, which he

termed "fixed air", and that this "fixed air" would not support either a flame or animal life (Bursztein, et al., 1989). Fixed air was later termed phlogisten (presently known as carbon dioxide)(Kleiber, 1961). In 1774, Priestley discovered what today is known as oxygen but he referred to it as dephlogisten air. This led to his theory that respiration and combustion were similar in that they both discharged phlogisten into the air (Bursztein, et al., 1989).

However, it was Lavoisier in his paper of 1777 that changed the phlogisten theory and established that during respiration the oxygen content of the air diminished, the carbon dioxide content increased and that the nitrogen content remained unchanged (Blaxter, 1989).

A year later a student of Joseph Black's, Adam Crawford, is credited to be the first person to measure animal heat production (Bursztein, et al., 1989) (Kleiber, 1961). Crawford measured the heat by the increase in temperature of a given amount of water. He minimized the external heat loses from his crude calorimeter by insulating it with an eiderdown jacket (Bursztein, et al., 1989). Like Crawford, Lavoiser and LaPlace in 1780, constructed a combustion calorimeter that was insulted with an adiabatic jacket. It also served as an animal calorimeter by measuring the heat needed to melt ice (Kleiber, 1961). The heat given off by the animal in the chamber melted the ice. The water dripping from the ice was collected and weighed. Each gram of water indicated 80 calories of heat given off by the animal (Kleiber, 1961). This method was the first attempt at a direct measurement of metabolic rate by measuring heat production in animals.

Lavosier's revelation of the relationship between respiration and the production of heat was not his only contribution to the study of animal respiratory energetics. Purportedly, he wrote a letter to Joseph Black indicating that his research showed that

oxygen consumption increased when food was ingested, when performing muscular work, and when exposed to the cold. He also concluded that oxygen consumption was directly related to body size (Blaxter, 1989).

In a series of classic bell jar experiments, Lavosier was the first to measure metabolic rate, as we understand it today (Kleiber, 1961). In these experiments he measured the oxygen consumption of an animal for hours by enclosing it in a bell jar. He removed the carbon dioxide from the jar with a CO_2 absorbent (NaOH). The oxygen consumed by the animal was found to be the difference between the initial and final volumes of oxygen (Kleiber, 1961).

Lavoisier's bell jar experiment was the first recorded method for the indirect measurement of metabolic rate (Kleiber, 1961). A great improvement over Lavoisier's bell jar method was the Regnault-Reiset apparatus in 1849. In this apparatus the oxygen consumed by the animal was replaced with a glass burette, so the pressure in the chamber remained constant. The volume of oxygen added was a direct measure of the animal's oxygen consumption (Kleiber, 1961).

In 1913, Krogh made a gas tank that maintained a constant pressure by changing the volume; this container is known as a spirometer. In this apparatus, the person inhaled from a supply of oxygen in the spirometer and the expired air passed through a CO_2 absorbent before returning to the spirometer. The volume of O_2 used from the spirometer was the rate of oxygen consumption (Kleiber, 1961).

Open circuit systems were necessary for more accurate and longer metabolic measurements. Open circuit systems allowed the subject to inhale room air while the exhaled air was collected and analyzed. In 1862, Pettenkofer created this type of apparatus for use with humans (Kleiber, 1961). A pump, which was originally powered

by a steam engine, drew air out of a chamber through a gas meter. A partial air current was passed through a CO_2 absorber and its volume was measured. The CO_2 absorber was measured by titration. The amount of CO_2 absorbed, multiplied by the ratio of total to partial air current, was the amount of CO_2 that left the chamber. The difference between the CO_2 entering and leaving the chamber was considered the CO_2 production (Kleiber, 1961). In 1895, Tigerstedt built a similar apparatus with the ability to measure O_2 consumption as well as CO_2 production (Kleiber, 1961). Several open-circuit systems were developed in the years that followed. The better-known systems were developed by: Armsby (1904), Atwater (1899), Mollgaard (1917), and Kleiber (1935) (Kleiber, 1961).

The latest approach to indirect calorimetry uses computer technology and microelectronic instrumentation for the collection, measurement and computation of metabolic data (McCardle, Katch, & Katch, 1991). In this system, a computer is interfaced with an automated system that samples expired air continuously, a flow meter for measuring the volume of expired air, and electronic oxygen and carbon dioxide analyzers (McCardle, Katch, & Katch, 1991). These automated systems have increased the speed of data analysis and are accurate if careful and frequent calibration occurs (McCardle, Katch, & Katch, 1991).

Factors Affecting Resting Metabolic Rate

In sedentary subjects, resting metabolic rate (RMR) represents that largest portion of total energy expenditure per day, about 60-75% (Poehlman, 1989). The energy expended is from the cost of maintaining all systems of the body. It also includes the energy required to maintain electrolyte gradients, to sustain cardiovascular and pulmonary work

at rest, and to provide energy to be used by the central nervous system and other chemical reactions. The regulation of RMR is controlled by the thyroid gland (Poehlman, 1989).

For years researchers have been interested in the factors that affect RMR and to what extent each of these contribute to the RMR in human, this research is still today of interest. In 1915, Frances Benedict identified relationships between body weight, body surface area, protoplasmic tissue, height, gender, age, sleep, and diet to the amount of heat production (Benedict, 1915).

Benedict noted that body weight played a major role in heat production with heavier individuals producing a greater amount of heat. However, there appeared to be no constancy in this relationship. When he compared two individuals of 50 and 83 kg, who both had a total energy output of 1600 calories per day, he realized other variables besides weight affected RMR in man (Benedict, 1915).

Benedict also recognized a trend that athletes had a higher metabolism when compared to normal individuals, further confirming that heat production was not solely a function of body weight. Intrigued by the trend of athletes having a higher heat production, Benedict related this to the fact that "athletic training removes inert body fat and increases and hardens muscular tissue, resulting in a greater proportion of protoplasmic tissue" (Benedict, 1915). He concluded that the athletes having a higher heat production could be due to the greater percentages of protoplasmic tissue. Although percent body fat was not measured, Benedict did this comparison on two individuals with the same weight but differing heights, speculating that the taller individual would have a greater proportion of active protoplasmic tissue and the shorter individual would have a larger proportion of fat. Benedict did observe a trend that the taller person had a higher heat production (Benedict, 1915).

Benedict, noting that youths had a higher heat production when compared to older adults, also examined age in these early studies (Benedict, 1915). He concluded that the metabolic rate was greater in younger subjects. He noted that confusion existed as to whether it was protoplasmic tissue that made the difference in RMR.

Benedict also compared data on heat production when the subject was asleep versus awake lying down in a fasted state with no muscular contractions. Due to the resting state of the individual when they were awake, the increase in metabolism that Benedict observed could not be attributed to muscular activity. These early observation suggested that simply being awake and conscious increased the metabolic rate. When these same subjects were observed for diurnal variations he observed a trend of increased heat production throughout that day. He concluded that the metabolism was higher when a subject was awake versus asleep (Benedict, 1915).

Benedict also discussed the decrease in metabolism observed with a decrease in food intake. He measured the heat production of a man who fasted for 31 days, observing a gradual decline in his metabolism (Benedict, 1915).

In the years following Benedicts original work researchers continued to explore the same factors in an attempt to determine why individuals have different metabolic rates. Research in each of these areas will be discussed, the factors include: age, body composition, energy intake, hormones and neural control, gender, weight loss, the thermic effect of exercise, and the long term adaptations to exercise. Research examining the reliability of metabolic rate measurements will also be examined.

Age

Infants have a higher metabolic rate, per unit of lean body weight, than older adults. In humans after birth, metabolic rate declines rapidly until young adulthood and then

declines slowly with approaching age (Blaxter, 1989). The extent of the decline in RMR with aging can be enhanced by the trend for individuals to gain weight, as they get older. This weight gain could be due to a decrease in physical activity as well as an associated decrease in lean muscle mass. The elderly also tend to eat consume less energy as they age, all of which have been documented to decrease RMR (Blaxter, 1989). Keys, Taylor, & Grande (1973) did a longitudinal study and concluded that RMR decreases between 1-2% per decade. They also concluded that the decreases could be explained by changes in body composition (Keys, Taylor, & Grande, 1973). The subjects in Key's study (1973) had a decrease in lean body weight and an increase in fat weight throughout the years they were studied and confirmed, for the first time, that most of the decrease in RMR with aging can be accounted for by the change in body composition that occurs with aging (Ravussin, Lillioja, Anderson, Christin, & Bogardus, 1986)

Vaughan, Zurlo, & Ravussin (1991) also examined the affects of aging on RMR (Vaughan, et al., 1991). Their study measured the 24-hour energy expenditure in 102 subjects consisting of 38 elderly and 64 younger subjects. Twenty four-hour energy expenditure and sleeping metabolic rate were lower in the older group. Even after adjusting for differences in lean body weight, fat weight, and gender, the older group still had a lower sleeping metabolic rate. Vaughan and associates (1991) attributed the differences to a decrease in physical activity and lower energy intake observed with the older group (Vaughan, et al., 1991). There is no conclusive evidence that aging alone is the primary cause of a decrease in RMR; the decreases can be explained by other variables such as, body composition, levels of activity, and energy intake.

Body Composition

Most research on RMR has shown that body composition explains the majority of the variance in RMR between subjects; specifically lean body weight. Researchers have reported that lean body weight can explain between 80-85% of the variance in RMR between subjects (Ravussin & Bogardus, 1992; Ravussin, et al., 1986; Illner, Brinkmannm, Heller, Westphal, & Muller, 2000). Metanalysis on factors influencing RMR have also confirmed that lean body weight is the single best predictor of RMR (Cunningham, 1980; Ballor & Poehlman, 1995). The majority of studies that support the hypothesis that increases in lean body weight will increase RMR have compared athletes to non-athletes, and the obese to the lean. These cross sectional studies generally support the finding that lean body weight explains the majority of the variance in RMR between subjects (Broeder, Burrhus, Svanevik, & Wilmore, 1992; Campbell, Crim, Young, & Evans, 1994; Sjodin, Forslund, Westerterp, Anderson, Forslund, & Hambraeus, 1995; Almeras, Mimeault, Serresse, Boulay, & Tremblay, 1991; Smith, Dollman, Withers, Brinkman, Keeves, & Clark, 1997; Ballor & Poehlman, 1992; Berke, Gardner, Goran, & Poehlman, 1992; Tremblay, Fontaine, Poehlman, Mitchell, Perron, & Bouchard, 1986).

Studies are also investigating the metabolic rate of the different organs, which contribute significantly to RMR (Illner, et al., 2000; Tataranni & Ravussin, 1995). By using dual-energy X-ray absorptiometry (DEXA) and magnetic resonance imaging (MRI), Illner and associates (2000) were able to analyze the metabolic activity of muscle mass and internal organs. They concluded that the liver mass and skeletal muscle significantly contributed to the predicted resting energy expenditure (Illner, et al., 2000). Studies that analyze the contribution of the internal organs to RMR agree that the mass of

the internal organs contributes to the variance in resting energy expenditure (Illner, et al., 2000; Tataranni & Ravussin, 1995). More research is needed on this topic.

However, there is also literature that does not support that lean body weight correlates with an increase in RMR. These have been longitudinal studies measuring RMR and lean body weight before and after physical activity programs (Westererp, Meijer, Schoffelen, & Janssen, 1994, Buemann, Astrup, & Christensen, 1991; Bingham, Goldberg, Coward, Prentice, & Cummings, 1988; Broder, Burrhus, Svanevik, & Wilmore, 1992). These studies all observed an increase in lean body weight with either a decrease in body weight, or no change in body weight. They all concluded that there was not a significant change in RMR despite increases in lean body weight.

After a 44-week endurance training program, the subjects in Westererp and associates study (1994), had a decrease in their body weight, and fat weight, with an increase in lean body weight, but there was a decrease in sleeping metabolic rate (Westererp, et al., 1994). The researchers concluded the decrease in sleeping metabolic rate seen with the training program could be a defense mechanism of the body in an attempt to maintain body weight.

It has been suggested that part of the inconsistency of findings in body composition and RMR studies could be due to methodology (Ravussin & Bogardus, 1989). Differences in energy intake, mode of exercise, exercise intensity and duration, body composition changes, energy expenditure vs. energy intake, fitness level of the subjects, longitudinal vs. cross sectional studies, how the resting metabolic rate measurement was performed and under what conditions often make the studies difficult to compare.

Energy Intake

Food intake alters metabolic rate in two ways, there is an acute adaptation and a longer-term adaptation. Acutely, there is an immediate increase in metabolic rate following a meal; this has been termed the thermic effect of a meal (TEM) (Poehlman, 1989). A longer-term adaptation occurs when the metabolic rate adjusts during periods of over and underfeeding, which can last for days (Dauncey, 1980).

TEM is an increase in metabolism to utilize the nutrients ingested for energy, repair, and storage (Mole, 1990). The energy expended during the TEM represents additional expenditure above the resting energy expenditure (Poehlman, 1989). The magnitude of the TEM depends on several factors, including the energy content of the food, as well as the nutritional state and previous diet of the individual (Poehlman, 1989). The term thermic effect of feeding (TEF) is commonly used interchangeable with the TEM. However, they are not synonymous, TEF represents the cumulative energy expenditure, whereas, TEM is the energy expended in a single meal (Poehlman, 1989). TEM probably would not contribute to the RMR measurement taken at least 12 hours after the last meal (Mole, 1990; Poehlman, 1989).

The metabolic adaptations that occur with energy intake can exceed beyond the acute affects observed in the thermic effect of a meal. It has been well documented that under feeding results in a decrease in RMR and over feeding results in an increase in RMR (Van Zant, 1992; Apfelbaum, Bostsarron, & Lacatis, 1971). RMR may be elevated beyond the 12-hour period if an individual overeats during the previous 24-hour period. Dauncey (1980) measured BMR after overeating. When examining subjects who consumed between 2006 kcal/day to 3303 kcal/day, they found a 12% elevation in metabolic rate for 14 hours after the last meal (Dauncey, 1980). Therefore, when RMR

studies are conducted the last meal should be at least 12 hours prior and the intake should not be in excess of the subjects' normal requirements (Poehlman, 1989; Blaxter, 1989; White, et al., 1996).

Apfelbaum and associates (1971) measured the basal metabolic rate during an overfeeding, underfeeding, and control condition over the course of 15 days. The group of subjects who were overfed in the study had their caloric intake increased by 1500 kcals/ day, which resulted in a 12-29% increase in RMR (Apfelbaum, et al., 1971). The group of subjects that were in negative energy balance had a 0.9% per day decrease in their RMR. This amounted to a 12-17% decrease in RMR over the course of the fifteen days. The decrease in energy expenditure could not be accounted for solely by weight loss, RMR decreased beyond what the predicted RMR was at the lower body weight. The metabolic adaptations observed during underfeeding may serve as a protective mechanism to prevent excessive loss of energy stores in vital tissues during periods of starvation (Van Zant, 1992).

Deriaz and associates (1992) did a similar study, but they did report the body composition changes associated with the long term overfeeding (Deriaz et al., 1992). They found that RMR increased with overfeeding. They also observed that before they manipulated the subjects' energy intakes, lean body weight, skeletal muscle mass, and body weight were significantly correlated with RMR. However, after manipulation of energy intake occurred RMR was no longer related to lean body weight and body weight.

The change in energy expenditure observed with over and under feeding is an adaptation to maintain the individual's energy stores. Some possible causes for these metabolic adaptations could be sympathetic nervous activity, and thyroid hormone function (Van Zant, 1992). The evidence is clear that when individuals are in negative

energy balance their RMR decreases, and when in positive energy balance the RMR increases (Poehlman, 1989).

Individuals who exercise on a regular basis must consume more energy to remain in energy balance, this has been termed "high flux" (Bullough, Gillette, Haris, & Melby, 1995; Poehlman, 1989; Poehlman, et al., 1992). Toth, Gardner, and Poehlman (1996) suggest that the discrepancies in the effects that exercise has on RMR may be resolved by studying the "high flux" condition (Toth, Gardner, & Poehlman, 1996). High flux signifies that these individuals have a larger daily energy intake and expenditure and thus an elevated RMR. These individuals can eat 4000 kcals a day and maintain energy balance through a high energy expenditure (Poehlman, 1989). Research examining the high flux theory indicates that higher RMR measurements in trained versus untrained individuals could result from acute effects of high-energy intakes and expenditures, rather than chronic adaptations to exercise (Poehlman, 1989; Bullough, et al., 1995). Bullough and associates (1995) documented that when the trained subjects are taken out of the high flux state, the elevated RMR measurements are reduced which signifies an acute not chronic elevation (Bullough, et al., 1995).

Gender

Most RMR comparisons between men and women indicate that men have a higher RMR than females (Tarnopolsky, 1999; Tataranni & Ravussin, 1995). The differences are attributed to the differences in lean body weight. However, after adjusting for differences in lean body weight there still exists a difference in RMR between genders (Ferraro, et al., 1992). A study that directly compared genders concluded that sedentary 24-hour energy expenditure was 5-10% lower in females compared to males, even after adjusting for differences in body composition, age, and activity (Ferraro, et al., 1992). If

the phase of the menstrual cycle was considered the difference may have been greater. Twenty-four hour energy expenditure has been reported to be 9% higher in females during the luteal phase of the menstrual cycle due to increased progesterone, and androgens (Ferraro, et al., 1992; Webb, 1986). Of the 121 women in the study, it could be assumed that some were in the luteal phase of their menstrual cycle during the RMR measurement. Since menstrual status was not considered in Ferraro and associates study (1992) the difference between men and women may have been greater than reported (Ferraro, et al., 1992).

Tarnopolsky (1999) explains that most of the metabolic difference between females and males is due to the lean body weight and the sex hormones, particularly, testosterone, estrogen and progesterone. (Tarnopolsky, 1999)

Hormone/Neural Control and RMR

Stress whether physical or emotional, increases metabolic rate by stimulating the sympathetic nervous system (SNS) (Marieb, 1992). Spraul and associates (1993) examined sympathetic nerve activity and metabolic rate, and concluded that the activity of the SNS was a determinant of energy expenditure (Spraul, et al., 1993). Other researchers have also found evidence that RMR is influenced by the nervous system. In 1992, Tremblay and associates blocked B-adrenergic stimulation by administering propranolol in trained and untrained subjects. Before administration of propranolol, RMR was higher in trained subjects. After administering propranolol to the trained subjects, RMR decreased to a value comparable to the untrained subjects. The researchers concluded that B-adrenergic stimulation of the SNS is involved in the higher resting metabolic rates observed in highly trained subjects (Tremblay, et al., 1992). SNS

stimulation causes the release of epinephrine and norepinephrine, which increase RMR by stimulating fat catabolism (Marieb, 1992).

Since a major function of the thyroid gland is control of metabolism, the amount of thryroxine produced is the most important hormone determining metabolic rate (Marieb, 1992). Its direct effect on most cells of the body is to increase oxygen consumption. This occurs by accelerating the cellular use of ATP for operation of the sodium potassium pump (Marieb, 1992). In the past, calorimetry was used as a measure of thyroid functioning; today other tests can more accurately measure thyroid function (Marieb, 1992).

Progesterone promotes changes in the uterine endometrium during the luteal phase of the menstrual cycle (Tarnopolsky, 1999). Progesterone also acts as a metabolic stimulant (Ferraro, et al., 1992; Webb, 1986). Webb observed progesterone's metabolic effects when eight out of ten women had an increase of 8-16% during the 14-day luteal phase of their menstrual cycle (Webb, 1986).

Weight Loss

After weight loss there is usually a decrease in RMR, which can be partly explained by a decrease in lean body weight (Ballor & Poehlman, 1995). After obese people lose weight they are hypometabolic relative to when they were obese. However, it is inconclusive whether the decline in energy requirements is proportional to the loss in lean body weight (Heshka, Yang, Wang, Burt, & Pi-Sunyer, 1990). Finer, Swan, and Mitchell (1985) examined RMR after massive weight loss. The subjects had their jaw wired so they could only be fed through a straw; they were fed 382 kcal/day (Finer, Swan, & Mitchell, 1985). RMR decreased 25% after an average 34.5 kg weight loss. Therefore, it is difficult to conclude what caused the decrease in RMR. Since there is evidence that

RMR declines during a hypocaloric diet, (Heshka, et al., 1990) RMR could have decreased due to the subjects' low energy intake.

During hypocaloric weight loss programs exercise is recommended to maintain RMR (Ryan, Pratley, Elahi, & Goldberg, 1995). RMR increased in 15 postmenopausal women when strength training was added to an energy restricted weight loss program (Ryan, et al., 1995). The researchers attributed the increase in RMR to the increase in lean body weight that developed from the strength-training program (Ryan, et al., 1995). These subjects' overall body weight decreased and they were on a calorie-restricted diet indicating that lean body weight is related to RMR. Nieman, Haig, De Guia, & Dizon (1988) performed a similar study by comparing a calorie-restricted diet to a calorie-restricted diet that included exercise. They used aerobic exercise as their mode of exercise, and concluded that the exercise did help counteract the decline in RMR that occurred with a low calorie diet (Nieman, Haig, De Guia, & Dizon, 1988). Weight loss that causes a loss of lean body weight will cause RMR to decrease (Heshka, et al., 1990; Ryan, et al., 1995; Nieman, et al., 1988). It appears that exercise can counteract the decrease in RMR that occurs with weight loss (Nieman, et al., 1988; Ryan, et al., 1995). During RMR research subjects should have a history of weight stability to avoid metabolic variations (Poehlman, 1989).

RMR and The Thermic Effect of Activity

The amount of daily physical activity that an individual engages in varies widely between subjects. The energy expended during physical activity is known as the thermic effect of activity (TEA), it varies between 15-30% of the total daily energy expenditure (Poehlman, 1989). TEA is the most variable component of 24-hour energy expenditure. Studies measuring the TEA concluded that the more intense and prolonged the exercise

session, the greater the energy expenditure during both exercise and recovery (Akabas, Colt, Kissileff, Pi-Sunyer, 1985; Bahr, & Maehlum, 1986; Burleson, O'Bryant, Stone, Collins, & McBride, 1997; Frey, Byrnes, & Mazzeo, 1993; Kaminsky, Padjen, & LaHam-Saeger, 1990; Poehlman, 1989).

During and immediately following an exercise bout the oxygen consumption is elevated and stays elevated for a period of time after the exercise session has ceased (Akabas, et al., 1985; Kaminsky, et al., 1990; Frey, et al., 1993; Bahr & Maehlum, 1986; Burleson, et al., 1997). This elevated oxygen consumption during the recovery period is termed the excess post oxygen consumption (EPOC) (Bahr & Maehlum, 1986; Brooks, Fahey, & White, 1996).

EPOC may last from 2 hours to 24 hours following an exercise bout (Bahr et al., 1986). Bahr suggested that when very prolonged oxygen uptakes are observed after exercise, such as those lasting 24 hours, it could be due to methodological reasons (Bahr & Maehlum, 1986). The methods of measuring oxygen consumption after exercise vary widely which makes some studies difficult to compare. Several factors need to be considered:

1. the intensity and duration of the exercise bout. The higher the intensity and the longer the duration, the greater the magnitude and duration of EPOC (Bahr & Maehlum, 1986; Chad & Wenger, 1988).
2. the technique of how the pre-exercise RMR measurements were taken (Bahr & Maehlum, 1986).
3. whether the thermic effect of a meal was controlled. Longer EPOC responses could be due to the food intake during the recovery period (Poehlman, 1989).

4. whether energy intake during the pre-exercise RMR measurement was controlled (Poehlman, 1989). Food intake less than 12 hours prior to the RMR measurement could cause an elevated RMR measurement (Poehlman, 1989).
5. whether the amount of physical activity during the post-exercise recovery period was controlled. Physical activity in the post-exercise recovery period could account for a prolonged EPOC response (Bahr & Maehlum, 1986). The duration of EPOC would be greater if the subjects returned to "normal life" compared to resting supine in the lab.

Because of EPOC, the subjects' intensity, duration, and time of last exercise need to be accurately monitored when measuring RMR (Poehlman, 1989). Elevated post-exercise oxygen consumption is the most pronounced in the first 12 hours post-exercise (Poehlman, 1989). Therefore, the last exercise bout should be no less than 12 hours prior to the RMR measurement, and food intake should be controlled to alleviate any exercise and energy intake induced elevations in RMR.

Another theory explaining the higher RMR measurements observed in endurance athletes is that the thermic effect of activity occurs daily causing the RMR to remain elevated. Almeras and associates (1991) demonstrated this finding when they measured the daily energy expenditure in endurance athletes. They found when exercise was eliminated in endurance athletes that the daily energy expenditure was the same as a control group. They concluded that the increase in daily requirements in athletes is exercise induced and not a chronic adaptation (Almeras, et al., 1991).

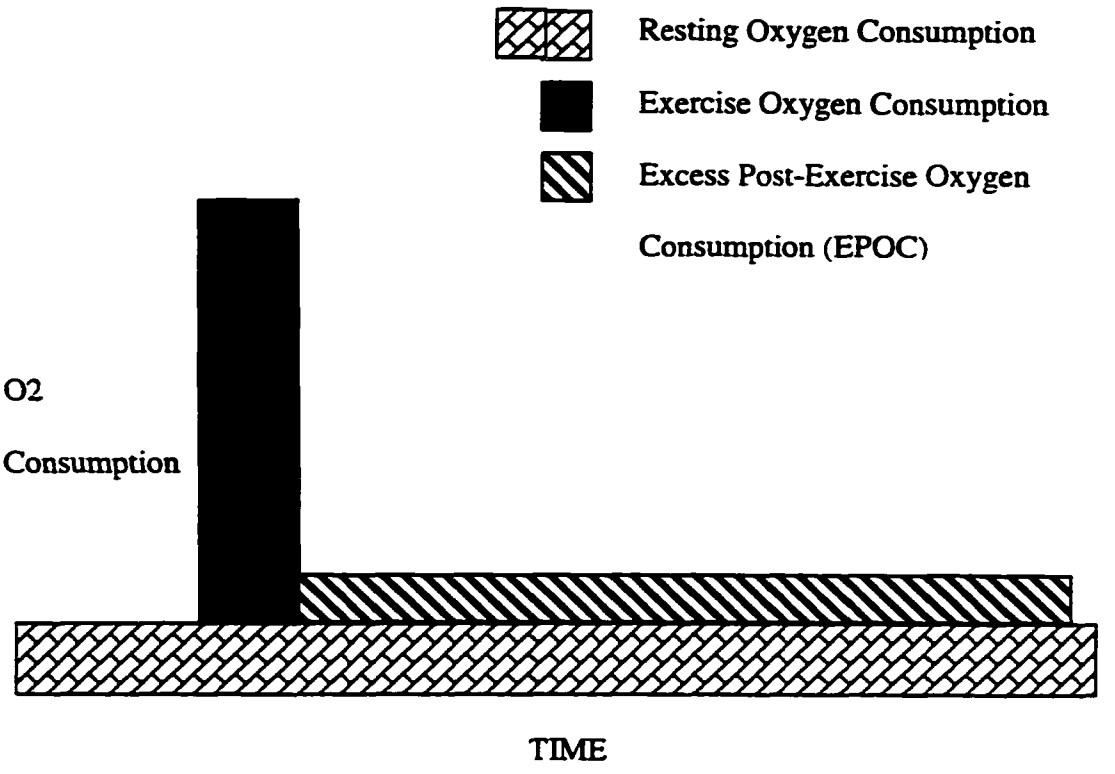

Figure 3. Schematic drawing depicting the relationship between resting oxygen consumption, exercise oxygen consumption and excess post-exercise oxygen consumption (Bahr & Maehlum, 1986).

Chronic Effects of Exercise on RMR

The question of whether regular exercise causes a chronic adaptation to the RMR is still one that remains to be answered. A chronic adaptation implies that the adaptation is long term and will remain for a period of time greater than that observed by the thermic effect of activity. Studies examining the long-term effects of exercise on RMR are not as conclusive as the thermic effect of activity studies (Sjodin, et al., 1996; Ballor & Poehlman, 1992; Berke, et al., 1992; Tremblay, et al., 1986; Poehlman, Melby, & Badylak, 1988; Poehlman, et al., 1992; Toth, et al., 1995). Cross sectional and longitudinal training studies have been used to examine the effects of training on RMR

(Sjodin, et al., 1996; Ballor & Poehlman, 1992; Berke, et al., 1992; Tremblay, et al., 1986; Poehlman, Melby, & Badylak, 1988; Poehlman, et al., 1992; Toth, et al., 1995). Cross sectional studies have compared trained to untrained groups of subjects, whereas training studies will implement an exercise program and measure RMR before and after the program (Sjodin, et al., 1996; Ballor & Poehlman, 1992; Berke, et al., 1992; Tremblay, et al., 1986; Poehlman, Melby, & Badylak, 1988; Poehlman, et al., 1992; Toth, et al., 1995). Cross-sectional comparisons of RMR may be useful in detecting large differences in maximal aerobic power and training status on RMR (Poehlman, 1989). However, other factors that effect RMR are not accounted for in this design. Genetics, hormones, and anxiety would be a few of these factors (Poehlman, 1989; Poehlman & Horton, 1989). Therefore, the cross-sectional design makes it impractical to conclude if an elevated RMR is due to the training status of the subject (Sjodin, et al., 1995).

Longitudinal training studies examining the effect of exercise on RMR can lessen variations between subjects by having them act as their own control. Training studies examine changes in fitness levels and the change in fitness on RMR (Poehlman, 1989). It should be noted that discrepancies in results regarding the effects of exercise on RMR have been found with both experimental designs.

Studies on the long-term effect of exercise on RMR have examined both aerobic and resistance training (Sjodin, et al., 1995; Ballor & Poehlman, 1992; Berke, et al., 1992; Tremblay, et al., 1986; Poehlman, Melby, & Badylak, 1988; Poehlman, et al., 1992; Toth, et al., 1995). Some of these studies have shown that only aerobic exercise promotes an elevated RMR (Toth, et al., 1995; Poehlman, et al., 1992; Berke, et al., 1993; Ballor & Poehlman, 1992). These studies suggest that a high level of aerobic fitness may be needed to observe an elevated RMR (Poehlman, 1989). However, this observation is

inconclusive. A cross-sectional analysis of 205 Pima Indians ranging in maximal oxygen uptakes from low levels (27 ml O_2/kg FFM $^{-1}$/ min^{-1}) to high levels (74 ml O_2/kg FFM^{-1}/ min^{-1}) found aerobic fitness had no significant effects on RMR (Ravunissin & Bogardus, 1989). Poehlman and associates (1992) found that when comparing aerobically trained to resistance trained subjects both groups had a higher RMR when compared to sedentary controls. The aerobically trained RMR was 10% higher and the resistance-trained was 5% higher than controls. However, both groups had an elevation in RMR when compared to controls (Poehlman, et al., 1992).

The cross sectional studies that have found an increase in RMR conclude that exercise induced increases in lean body weight explains the elevations in RMR (Sjodin, et al., 1995; Broder, et al., 1992; Ballor & Poehlman, 1992; Tremblay, et al., 1986). Although most of the variance was accounted for by changes in lean body weight, it could not account for all the observed elevations in RMR (Sjodin, et al., 1995; Ballor & Poehlman, 1992; Tremblay, et al., 1986; Poehlman, et al., 1988; Poehlman, 1989; Poehlman, et al., 1992).

Several longitudinal studies found no change in RMR due to exercise (Buemann, et al., 1991; Broder, et al., 1992; Binghman, et al., 1988; Laforgia, et al., 1998), and several cross-sectional studies likewise found no change in RMR due to exercise (Broder, et al., 1992; Almeras, et al., 1991; Dahlstrom, Jansson, Ekman, & Kaijser, 1995; Smith, et al., 1997; Schulz, Nyomba, Alger, Anderson, & Ravussin, 1991; Ravunussin & Bogardus, 1989). Even with the documented effects that lean body weight has on RMR, lean body weight could not explain these findings. Van Etten, Westerterp, and Verstappen (1995) reported a 12-week training program that promoted an increase in lean body weight; a decrease in fat weight and body weight did not cause elevations in metabolic rate. These

researchers measured sleeping metabolic rate. Broder and associates (1992) also documented these results by conducting a 12-week resistance and endurance exercise program. The resistance group had an increase in lean body weight and a decrease in fat weight, where as, the endurance group maintained their lean body weight while they decreased their fat weight. Neither group had elevations in their RMR (Broeder, et al., 1992).

The effect of physical training on RMR is an area of controversy. Genetic variation, timing of the exercise bout relative to the RMR measurement, the quantity and timing of food intake relative to the RMR measurement, and different criteria to define trained and untrained subjects all contribute to the conflicting results in the research (Poehlman, 1989).

Macronutrient Oxidation

Carbohydrates, fats and proteins are termed the macronutrients (Manore & Thompson, 2000). The macronutrients differ in their energy content and in the amount of oxygen and carbon dioxide they produce when combusted (Manore & Thompson, 2000). When combusted, the ratio between the volume of carbon dioxide produced and the oxygen consumed (CO_2/ O_2) is termed the respiratory quotient (RQ) (Manore & Thompson, 2000). RQ is an indicator of the amount of carbohydrate and fat that is being used for energy at the cellular level (Manore & Thompson, 2000). Measurements at the cellular level are difficult to obtain so oxygen and carbon dioxide are measured from expired air. Since it is measured from expired air it is referred to as respiratory exchange ratio (RER). The RER formula (CO_2/O_2) is the same as RQ, but RER is measured from expired air. Where as, cellular RQ can range between .7 (burning pure fat) and 1.0

(burning pure carbohydrate) RER can be greater than 1.0. (Manore & Thompson, 2000). Because RQ and RER are calculated using the same equation the terms are often used interchangeably. However, RER should be the term used when expired gases are measured and used to estimate fuel utilization (Manore & Thompson, 2000).

Respiratory exchange ratios can easily be converted to grams of carbohydrate and fat metabolized. Respiratory exchange ratios range from 0.7 to 1.0, with pure carbohydrate having a value of 1.0 and pure fat having a value of 0.7 (Manore & Thompson, 2000). Protein is generally not reported for a couple of reasons. First, to accurately measure protein metabolism urinary excretion must be measured. Second, the contribution of protein to energy metabolism is minimal especially at rest (McCardle, et al., 1991). Therefore, researchers often report a non-protein RQ and assume that protein is not contributing to energy expenditure, only fats and carbohydrates. In most cases reporting a non-protein RQ introduces only a small error (McCardle, et al., 1991).

Most research examining macronutrient oxidation has tried to establish the relationship between dietary intake and the macronutrients that are oxidized. Dietary intake can alter macronutrient oxidation by modifying the macronutrients that are available (Goedecke, et al., 2000). Most research agrees that the percentage of fat and carbohydrates consumed in the diet are the primary determinant of RER at rest (Goedecke, et al., 2000; White, et al., 1996).

Day-to-Day Variations in RMR

RMR has been shown to depend on the many factors discussed throughout this review. Since many of these factors are known, researchers have examined how reliable metabolic rate is from day-to-day when you control for these factors. When measuring

how reliable metabolic rate is from day-to-day researchers have examined basal metabolic rate (BMR), 24-hour energy expenditure, and RMR. Henry and associates (1989) summarized 16 studies that examined within-subject variability in basal metabolic rate. They reported that only three of these studies had more then one subject, and that the reliability has been examined from 19 days to 2 ½ years. The lowest coefficient of variation was 0.97% with the highest approaching 6.2% (Henry, Hayter, & Rees, 1989). The frequency of measuring BMR during any time period varied greatly. One study reported five measurements over an eleven-day period and a CV of 0.97% (Henry, et al., 1989) while another study reported 171 measurements over a one-year period and a CV of 3.41% (Henry, et al., 1989). Further examining this area was Soares and associates (1989). They examined the daily variations of BMR in six adults. They measured BMR every day for 14 consecutive days, and found a CV of 1.5% (Soares, Piers, Kraai, & Shetty, 1989). The small coefficients of variation in these studies suggest BMR is a relatively stable measurement.

Within-subjects variability in 24-hour energy expenditure has been examined the most frequently (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, 1984; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, Seale, Conway, & Moe, 1990; Soares & Shetty, 1986, Toubro, et al., 1995; White, et al., 1996). RMR contributes about 60-75 % of 24-hour energy expenditure (Poehlman, 1989). Twenty-four hour energy expenditure is measured in a whole body direct or indirect calorimeter. The subjects generally follow a fixed physical activity protocol, with the periods of rest and activity controlled throughout the 24-hour stay in the calorimeter. The subjects in these studies will generally consume a weight maintenance diet that matches energy intake to energy expenditure (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987;

Garby, et al., 1984; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, et al., 1990; Soares & Shetty, 1986, Toubro, et al., 1995; White, et al., 1996).

Most of the research examining the reliability of 24-hour energy expenditure agrees that it is a very reliable measurement (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, et al., 1984; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, et al., 1990; Soares & Shetty, 1986, Toubro, et al., 1995; White, et al., 1996). However, Sukhatme & Narain in 1983 reported that the intra-individual variations in 24-hour energy expenditure are large (CV of 7%). They concluded that the wide variations in daily energy expenditure should be considered when assessing the energy needs of an individual (Soares & Sheety, 1986).

Research supporting that 24-hour energy expenditure is a reliable measurement is extensive. Reliability studies on 24-hour energy expenditure report a CV from 1.5% to 3.2% (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, et al., 1984; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, et al., 1990; Soares & Shetty, 1986, Toubro, et al., 1995; White, et al., 1996). Anderson and associates (1991) measured 24-hour energy expenditure one time a month over ten months in four subjects, and reported a CV of 3.2% (Anderson, et al., 1991). Astrup and associates (1990) measured 24-hour energy expenditure two times, four weeks apart in ten subjects, and reported a CV of 2.3% (Astrup, et al., 1990). DeBoer and associates (1987) measured 24-four hour energy expenditure two different times each over a three-day period in ten subjects, and reported a CV of 3.1% (DeBoer, et al., 1987). Garby and associates (1984) measured 24-hour energy expenditure two times, one week apart in eight male subjects, and reported a CV of 2.2% (Garby, et al., 1984). Murgatroyd and associates (1987) measured 24-hour energy expenditure over a twelve-day period in four male subjects, and

reported a CV of 1.97% (Murgatroyd, et al., 1987). Ravussin and associates (1986) measured 24-hour energy expenditure two times, one-week apart in 12 subjects, and reported a CV of 2.4% (Ravussin, et al., 1986). Toubro and associates (1995) measured 24-hour energy expenditure two times, fourteen days apart, in 22 subjects, and reported a CV of 1.5% (Toubro, et al., 1995). White and associates (1996) also measured 24-hour energy expenditure two different times in 39 adults. They reported an intraclass correlation coefficient of R= 0.97 and a CV of 3% (White, et al., 1996). All these studies concluded that under controlled conditions 24-hour energy expenditure is a reliable measurement and very reproducible (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, et al., 1984; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, et al., 1990; Soares & Shetty, 1986, Toubro, et al., 1995; White, et al., 1996).

It appears that the subjects' familiarity with the respiratory chamber contributes to the within-subjects variability. Of the ten studies examining the reliability of 24-hour energy expenditure the lowest CV's were reported when the subjects were familiar with the chamber (DeBoer, et al., 1987; Toubro, et al., 1995). DeBoer and associates (1987) documented this when they did a separate analysis on six of their ten subjects. By excluding the four subjects who were unfamiliar with the chamber the CV decreased from 3.1% to 1.9% (DeBoer, et al., 1987). They concluded that the subjects' familiarity with the technique could affect the CV (DeBoer, et al., 1987). They further supported this when they measured the same subjects for three consecutive days, two different times. The time period between the two testing sessions was between 2 months and 24 months. The CV for the first three-day session was 2.6% and the CV for the second session was 1.8% (DeBoer, et al., 1987). They concluded that the CV decreased after adaptation to the calorimeter, and that reproducibility improves after adaptation (DeBoer,

et al., 1987). The subjects' familiarity with the technique could explain why Toubro and associates found the lowest CV, 1.5% (Toubro, et al., 1995). The twenty-five subjects in Toubro and associates study (1995) spent one night in the chamber prior to the measurement period.

Toubro and associates (1995) also reported that the subjects in their study were very weight stable. Body weight had a CV of 0.6% between the two testing sessions (Toubro, et al., 1995). A stable body weight and a subjects' familiarity with the technique both appear contribute to the reliability of 24-hr energy expenditure (Toubro, et al., 1995; DeBoer, et al., 1987).

Some researchers have concluded that the longer the time period between the two measurements the less reproducible the measurement is (Anderson, et al., 1990; Rumpler, et al., 1990). To test this theory Rumpler and associates (1990) measured 24-hour energy expenditure in two different experiments. In experiment one they measured 24-hour energy expenditure five times, one day apart, and reported a CV of 2.7%. In experiment two they measured 24-hour energy expenditure five times, one week to three weeks apart, and reported a CV of 4.6%. They concluded that the longer the time period between measurements the larger the CV (Rumpler, et al., 1990). Anderson and associates (1991) who reported a CV of 3.2% measured 24-hour energy expenditure over 10 months (Anderson, et al., 1991). The long time period could explain the larger CV reported in their study.

DeBoer and associates (1987) suggest that 24-hour energy expenditure is reproducible even over long periods of time if the following occurs: 1. Body weight and body composition don't change. 2. Energy intake and physical activity are the same. 3. The subjects are well adapted to the calorimeter before each measurement (DeBoer, et

al., 1987). The larger variations in 24-hour energy expenditure over long time periods could be due to a change in body weight, subjects' familiarity with the technique, and any changes in their physical activity and energy intake habits (DeBoer, et al., 1987). It appears that under controlled conditions 24-hour energy expenditure is also a very reliable measurement.

However, it is less clear whether RMR is also a reliable measurement. Research examining the reliability of RMR is less reported, and inconclusive. Present day measurement of subjects' caloric requirements generally measure RMR. Miles et al. (1992) examined the within-subject variation in the thermic effect of a meal. Although it was not the purpose of their study, they also analyzed the within-subjects variation during the pre-meal one-hour RMR measurement. They concluded that the CV was 5.2% and ranged from 2.4%- 8.5%. The researchers concluded that if a RMR measurement from the subjects' previous day was used to correct for their thermic effect of food data, then an error would have occurred (Miles, Wong, Rumpler, & Conway, 1992). Toubro and associates (1995) also measured RMR for one hour during their 24-hour energy expenditure study. They reported that the CV for RMR was much larger than 24-hour energy expenditure, 4.1% vs. 1.5% respectively (Toubro, et al., 1995). They concluded that the higher CV of RMR is probably due to the shorter duration of the measurement (Toubro, et al., 1995).

On the other hand, Soares and Shetty (1986) documented that RMR is a remarkably constant measurement (Soares & Shetty, 1986). These researchers have conducted numerous studies in this area, most of which have examined BMR rather than RMR. However, in 1986 they examined the constancy of RMR in five male subjects. They measured RMR five times over 6 weeks. They found a CV of 3.1% and concluded that

RMR is a very stable measurement (Soares & Shetty, 1986). Unfortunately, these researchers did not report whether or not the subjects spent the night in the laboratory. If the subjects in this study had spent the night in the laboratory then the measurement would more closely resemble a BMR measurement. The stability of BMR and 24-hour energy expenditure could lead one to assume that RMR is also a stable measurement however, it remains unclear.

CHAPTER 3

METHODOLOGY

The methodology used in this study was approved by the University of Nevada, Las Vegas Human Subjects Review Board (see Appendix A4). Eighteen college students participated in the study. The mean age of the subjects was 22.8 ± 3.63 years, and ranged from 18 to 31 years. The mean height was 65.68 ± 10.54 cm, the mean body mass was 67.9 ± 21.9 kg, and the mean percent body fat was 23 ± 6.5%. The physical characteristics for each subject are presented in Chapter 4 (see Table 1).

Experimental Protocol

Orientation Day

Test days and times were determined and scheduled (see Appendix A1). All testing times were within two hours of the subjects' time of waking. Subjects were asked to adhere to instructions (see Appendix A2), which asked them not to eat, drink caffeine, exercise, or smoke twelve hours prior to each testing session. Directions and contact information to the Exercise Physiology Laboratory were given.

First Test Day

Subjects arrived at the laboratory ten minutes prior to their scheduled testing time.

Upon arrival, they read and signed the informed consent form (see Appendix A3) and any questions about the study were answered to their satisfaction. Subjects sat and relaxed to minimize the thermic effect of activity. While they rested, they completed a questionnaire about their eating and exercise for the previous 24 hours (see Appendix A5 & A6). Standing height was taken in centimeters using an anthropometer, and weight without shoes, was recorded in kilograms. During testing, subjects wore street clothes with no shoes. Subjects were fitted with an airtight Hans Rudolph breathing mask with a t-shaped one-way directional flutter valve. The mask covered the subjects' nose and mouth and no air escaped or could be breathed in around the mask. They lay supine on a bed. The laboratory temperature was maintained at 27 degrees Celsius. Resting metabolic rate was measured (see resting metabolic rate in the following section). Body composition was assessed following the resting metabolic rate measurement.

Resting Metabolic Rate Measurement

Resting metabolism was measured using open circuit spirometry. The Vacumed Turbofit system and Vista^{cx} Mini-CPX[1] gas analyzers by Vacumetrics were used. This system uses a paramagnetic oxygen analyzer and an infrared carbon dioxide analyzer (see Appendix D5 for procedure and calibration instructions).

The laboratory was arranged to maximize privacy and quietness for the subjects. All resting metabolic rate measurements were taken between 7 and 9 AM when the laboratory was unoccupied. A barrier wall was used to create a private space for non-distracted rest.

[1] Vista Mini-CPX Model # 17670 (Ventura, CA)

Each testing day, the Vista/Turbofit was calibrated in accordance with the manufacture's directions (see Appendix D5). Once fitted with the face mask, subjects reclined in the supine position on a bed. They were instructed not to fall asleep and to minimize fidgeting and unnecessary movement throughout the 35-minute test. Subjects were also informed that their resting heart rate would be monitored during the final five minutes of the test. The expired air was analyzed every 30 seconds for the total 35 minutes. The first ten minutes was to familiarize the subject with the equipment and allow them to relax. The remaining 25 minutes were used to calculate resting metabolic rate (Scott, 1993).

Body Composition Measurements

Body composition was measured to describe the subjects' physical characteristics. Body composition was assessed with Bioanalogics bioelectrical impedance and Lange skinfold calipers using Jackson/Pollock sum of four skinfolds equation.

Skinfold Calipers

Body composition was estimated with the Jackson/Pollock sum of four skinfolds equation. This predication equation was based on measurements taken with Lange calipers[2]. This equation is reliable for both men and women and uses age as a factor in the equation. It correlates 0.94 with underwater weighing (Golding, 2000).

The four skinfold sites used were (Golding, 2000):

a. Abdomen- vertical fold taken 1 inch to the right of the umbilicus.
b. Illium- diagonal fold taken just above the crest of the illium on the midaxillary line.

[2] Lange Calipers (Cambridge, MD)

c. Thigh- vertical fold taken on the front of the thigh midway between the top of the patella and the groin line.

d. Triceps- vertical fold taken on the back of the upper arm midway between the acromion and olecranon processes.

The four measurements were summed and the Jackson/Pollock computation table based on age and gender was used to determine percent body fat (see Appendix D3 & D4).

The Jackson/Pollock sum of four skinfold equation for men:

Percent fat= 0.29288 (4) – 0.005 (4) ^{2} + 0.15845 (Age) – 5.76377

The Jackson/Pollock sum of four skinfolds equation for women:

Percent Fat= .29669 (4) - .00043 (4) ^{2} +. 02963 (Age) +1.4072

The standard error (SE) for the men's equations is 3.49% fat and R=0.901. The SE for the women's equation is 3.98% fat and R= 0.852 (Golding, 2000)

The Lange caliper, which was used for measuring skinfold thickness, meets the specifications established by the committee of the Food and Nutrition Board of the National Research Council of the United States (Golding, 2000). They have a jaw surface area of 30 mm^2 and pressure of 300g. They have a standard jaw pressure of 10 g/mm^2 and have a constant tension spring, meaning the jaw pressure will remain 300 g regardless of how wide the calipers are opened (Golding, 2000).

Bioelectrical Impedance

Body Composition was also estimated through bioelectrical impedance (BIA) using a Bioanalogics ElectroLipoGraph[3] (Girandola, & Wiswell). The measurements were performed with the subject lying supine on a padded table. The sensor electrodes were placed on the right wrist and ankle after the skin surface was cleaned with alcohol. A small electrical current of 800 uA at 50 kHz was cycled through the subject. Bioimpedance was reported in ohms, and converted to percent body fat with the Bioanalogics software (Girandola, & Wiswell).

The Bioanalogics ElectroLipoGraph has been shown to be a simple and accurate method for measuring body composition. The accuracy was tested on 953 subjects: 533 females and 420 males. The bioelectrical impedance measurement concurred with the hydrostatic weighing method in 92.2% of the subjects (Girandola, & Wiswell).

Subsequent Test Days

On each testing day, the Vista/Turbofit was calibrated in accordance with the manufacture's directions (see Appendix D5). The same procedures were followed in the three subsequent test days.

Data Analysis

For comparison, mean daily RMR was calculated three different ways. Each subjects' average oxygen consumption, and carbon dioxide production was calculated between minutes 11:00 and 35:00. RMR (L O_2/min) was calculated by using the mean daily oxygen consumption in liters of oxygen per minute (see Appendix B2). RMR (ml kg^{-}

[3] Bioanalogics ElectroLipoGraph (Beaverton, OR)

! min^{-1}) was calculated using the mean daily oxygen consumption in milliliters of oxygen per kilogram of body weight per minute (see Appendix B2). RMR (kcal/min) was calculated with the Weir formula using the average oxygen consumption, and carbon dioxide production (Appendix B2). This was done for all four-test days.

Weir Formula (McCardle, et al., 1991):

Kcal/min = 3.941 (VO2 [L/min]) + 1.106 (VCO2 [L/min])

In the present study, an intraclass correlation was used to determine the reliability of RMR across days (Baumgartner, et al., 2002). A repeated measures ANOVA was used to determine if RMR changed significantly across days (Baumgartner, et al., 2002). SPSS v. 10.1 statistical software was used to perform the ANOVA and intraclass correlation.

Each subjects RER was calculated by using the ratio of carbon dioxide production over oxygen consumption (VCO_2/ VO_2). An intraclass correlation was used to determine the reliability of RER across days (Baumgartner, et al., 2002). A repeated measures ANOVA was used to determine if RER changed significantly across days (Baumgartner, et al., 2002). SPSS v. 10.1 statistical software was used to perform the ANOVA and intraclass correlation.

CHAPTER 4

RESULTS AND DISCUSSION

Results

The purpose of the study was to determine the reliability of resting metabolic rate (RMR) across days. Table 1 summarizes the physical characteristics for each of the eighteen subjects in this study.

A repeated measures ANOVA was used to examine if the RMR was significantly different across days. An intraclass correlation coefficient was used to examine the reliability of RMR across days.

Resting Metabolism Measurements

Resting metabolic rate was expressed in three ways: as liters of oxygen per minute (L/min), as milliliters of oxygen per kilogram of body mass per minute (ml kg^{-1} min^{-1}), and as kilocalories per minute (kcal/min). All three expressions of RMR were included in the analysis because these are the most commonly reported methods of expressing RMR. Since all three of these expressions are calculated from resting oxygen consumption it wasn't expected that the way RMR was expressed would affect the results. Resting metabolic rate was calculated per minute, and each subject's mean daily RMR was calculated with the group mean reported in table 2. In table 2, the column titled mean

represents the mean RMR for all subjects across days and the standard deviation is the standard deviation across the group mean RMR for all four-test days.

Table 1: Subject Physical Characteristics

Subject Number	Gender	Age Years	Average Body Mass in kg	Height Inches	Percent Body Fat Skinfolds	Percent Body Fat BIA
1	F	21	59.8	63.0	21.3	23.9
2	M	27	68.3	67.5	16.2	12.5
3	M	31	90.6	68.6	24.3	17.6
4	M	25	78.4	69.0	17.3	14.6
5	F	25	65.5	67.4	N/A	N/A
6	F	18	82.1	63.7	33.7	34.7
7	F	21	78.9	62.8	34.6	36.4
8	F	27	57.0	66.8	20.8	18.7
9	F	18	66.1	66.0	20.1	25.6
10	F	20	59.1	66.4	24.7	24.9
11	F	20	58.2	64.7	22.5	23.1
12	F	24	60.9	66.3	18.4	18.3
13	F	20	60.1	63.5	25.8	23.5
14	F	22	55.0	62.1	26.8	23
15	F	22	59.6	67.3	20.1	6.4
16	M	21	75.3	72.4	9.6	14.3
17	F	28	74.2	64.0	27.7	N/A
18	F	21	75.8	62.7	31.9	31.8
Average	4M; 14F	22.83	68.1	65.8	23	22
SD		3.63	10.3	22.1	6.5	8.1

Table 2: Group Mean Daily RMR Measurements

		Day 1	Day 2	Day 3	Day 4	Mean
RMR	mean	0.2413	0.2373	0.2415	0.2439	.2410
(L/min)	sd	± 0.0403	± 0.0398	±0.0395	± 0.0495	±0.0027
RMR	mean	3.3559	3.2985	3.3693	3.3847	3.3451
(ml kg^{-1} min^{-1})	sd	± 0.3505	± 0.2916	±0.3771	± 0.4991	±0.0374
RMR	mean	1.1501	1.1464	1.1427	1.1698	1.1523
(kcal/min)	sd	± 0.1899	± 0.1836	±0.1818	± 0.2195	±0.0120

As can been seen in table 2, RMR in (L/min) was a very reliable measurement across the four days. The intraclass correlation coefficient was R= 0.9355. A repeated measures ANOVA comparison showed that RMR in L/min was not significantly different between the four days ($F_{3, 51} = 0.2588$, $p = 0.8547$). These comparisons show that the subject and group mean RMR in L/min were very reliable across the four days.

Reporting RMR as ml kg^{-1} min^{-1} was also very reliable across days. The reliability had an intraclass correlation coefficient of R= 0.9743. The repeated measures ANOVA comparison revealed RMR in ml kg^{-1} min^{-1} was not significantly different across days ($F_{3, 51} = 0.6986$, $p = 0.5572$). These comparisons show that the subject and group mean RMR in ml kg^{-1} min^{-1} were very reliable across the four days.

Resting metabolic rate as ml kg^{-1} min^{-1} was also reported to examine how closely the group fell to the accepted mean RMR of the population. The common expression of 1 MET equals 3.5 ml kg^{-1} min^{-1}, it can be seen that this group was very close to that value.

Table 2 also expresses RMR as kcal/min. Kcal/min was calculated with the Weir formula.

The Weir formula states (McCardle, et al., 1991):

$$\textbf{Kcal/min} = [(1.1 \times \textbf{RER}) + 3.9] \times VO_2 \text{ (L)}$$

Reporting RMR as kcal/min was also reliable across days. The intraclass correlation coefficient was R= 0.9411. A repeated measures ANOVA comparison revealed that RMR in kcal/min was not significantly different across days ($F_{3, 51} = 0.6199$, $p = 0.6053$). These comparisons revealed that the subject and group mean RMR in kcal/min were very reliable across days.

Table 3: Average Daily RER Measurements

		Day 1	Day 2	Day 3	Day 4	Mean
RER	mean	.8621	.8162	.8238	.8389	.8262
	sd	± .0537	± .0461	±.0370	± .0531	± .0403

Respiratory exchange ratio was calculated as the ratio of carbon dioxide production over oxygen consumption for each minute. Each subject's mean daily RER was calculated with the group mean reported in table 3. In table 3, the column titled mean represents the mean RER for all subjects across days and the standard deviation is the standard deviation across the mean RER for all four-test days. The reliability was measured with an intraclass correlation coefficient (R= 0.3091). A repeated measures ANOVA comparison revealed that the RER was not significantly different across days ($F_{3, 51} = 0.8588$, $p = 0.4685$). These comparisons reveal that the group mean RER was reliable across days, however, the individual subjects responded differently.

Discussion

As expected, reporting the reliability of RMR as L/min, ml kg^{-1} min^{-1}, or kcal/min did not change the findings in the present study. For consistency the results of this study will be discussed as RMR in ml kg^{-1} min^{-1}. These results are in agreement with the findings of Soares and Shetty (1986) and Toubro and associates (1995) who reported that resting metabolic rate (RMR) is reliable across time. The present study reported an intraclass correlation coefficient of R= 0.9743, Soares and Shetty (1986) and Toubro and associates (1995) reported their results as coefficient of variation (CV), another method of examining reproducibility. Soares and Shetty (1986) reported a CV of 3.1%, and Toubro and associates (1995) reported a CV of 4.1%. (Soares & Shetty, 1986; Toubro, et al.,

1995). These studies and the present study indicate that RMR is a reliable measurement across days.

Metabolic rate studies that measured either 24-hour energy expenditure or basal metabolic rate (BMR) are also in agreement with this study (Henry, et al., 1989; Garby, Lammert, & Nielsen, 1984; Ravussin, et al., 1986, White, et al., 1996). All these studies reported very small CV. The results in this study support that RMR, like BMR and 24-hour energy expenditure, is reliable across days.

The daily variations reported in this study and other energy expenditure reliability studies are all very small (Henry, et al., 1989; Garby, et al., 1984; Ravussin, et al., 1986; White, et al., 1996). However, even though small, there are discrepancies in the variations reported. The discrepancies could be attributed to the duration of the measurement, subject selection, variations in body mass and body composition, changes in energy intake and physical activity and variations in the way RMR was measured.

Duration of the Measurement

The duration of a RMR measurement is short compared to a 24- hour energy expenditure measurement. Most RMR studies measure RMR for 10-60 minutes. Toubro and associates (1995) measured RMR for one hour during their 24-hour energy expenditure study. They reported that the CV for RMR was much larger than 24-hour energy expenditure, 4.1% vs. 1.5% respectively (Toubro, et al., 1995). They concluded that the higher CV of RMR is probably due to the shorter duration of the measurement (Toubro, et al., 1995).

Body Weight & Body Composition Variations

Also contributing to the variations could be changes in body weight and body composition. Research has clearly documented that during RMR research subjects should

have a history of weight stability to avoid metabolic variations (Poehlman, 1989). If body weight and/or body composition varied across measurements then larger variations would be expected (Ballor, et al., 1995; Heshka, et al., 1990; DeBoer, et al., 1987). Poehlman (1989) suggests that subjects should have a history of weight stability to eliminate variations in body weight (Peohlman, 1989). In this study the history of weight stability was assessed through questionnaires. All subjects reported weight stability. Table 2 summarizes the subjects' body mass recorded before each testing session. An intraclass correlation coefficient (R= .9920) and a repeated measures ANOVA ($F_{3, 51}$= 1.0063, p= .3976) revealed that body mass had minimal variations across days (see Appendix C5). The small variations in the subjects' body mass across days probably contributed to the high reliability of RMR in this study.

Energy Intake and Physical Activity Patterns

Any changes in the subject's energy intake and physical activity could also contribute to variations in energy expenditure. Research has clearly documented that large variations in energy intake and expenditure can affect RMR (Dauncey, 1980; Poehlman, 1989; Van Zant, et al., 1992; Apfelbaum, et al., 1971). The present study instructed subjects to maintain their normal daily activities and arrive for each testing session 12 hours post absorptive. They were also instructed to abstain from exercise twelve hours prior to each RMR measurement. The results of this study indicate when energy intake and physical activity are controlled RMR is a very reliable measurement across days.

Table 2: Body Mass

Subject #	Day 1	Day 2	Day 3	Day 4	Mean Body Mass
	Kg	Kg	Kg	Kg	Kg
1	58.0	57.3	57.6	58.0	57.7
2	68.6	68.2	68.3	68.2	68.3
3	90.9	90.9	90.0	90.5	90.6
4	78.2	78.2	78.2	78.6	78.3
5	65.9	65.9	65.2	65.7	65.7
6	82.3	82.3	82.0	82.0	82.2
7	79.0	79.0	79.3	79.0	79.1
8	57.0	57.0	57.0	57.0	57.0
9	66.0	66.6	65.9	65.9	66.1
10	58.6	58.6	59.0	59.0	58.8
11	58.2	58.2	58.6	57.7	58.2
12	61.6	61.8	60.5	60.5	61.1
13	60.0	59.5	60.0	60.9	60.1
14	55.4	54.3	55.0	55.0	54.9
15	60.0	59.3	59.5	59.5	59.6
16	78.4	74.1	75.2	73.6	75.3
17	74.1	74.5	74.5	73.6	74.2
18	75.7	75.9	76.4	75.5	75.8
Mean	68.2	67.9	67.9	67.8	67.9
Sd	10.6	10.6	10.4	10.3	10.5

The subjects' pre-test activities can also affect the RMR measurement. Poehlman (1989) advises that subjects sleep in the room the night before testing to reduce variation in metabolic rate that may be due to subject transport and new testing conditions (Poehlman, 1989). Most RMR studies will have subjects rest for 15-60 minutes before the RMR measurement (Ballor & Poehlman, 1992; Tremblay, et al., 1986; Poehlman, et

al., 1988). The subjects in the present study rested for 15 minutes prior to the RMR measurement. Subjects were also instructed to abstain from physical activity and perform the same toiletries each testing day. All testing times were scheduled two hours from the subjects awakening time to minimize any physical activity prior to the test. If pre-test activities are not controlled prior to each RMR measurement larger variations in RMR could be reported.

Subject Selection

The subject's familiarity with the measurement could also affect the reliability of the RMR measurement. Studies where the subjects are not familiar with the metabolic equipment before each measurement could produce larger within-subjects variations (DeBoer, et al., 1987). Poehlman (1989) explains that habituation of the subject to the testing procedures before the actual RMR measurement is performed is a necessary prerequisite (Poehlman, 1989). In the present study the first ten minutes of the 35-minute RMR measurement was excluded from analysis to eliminate the familiarization period. This could explain why this study reported a very high reliability across days.

Variations in RMR Reporting

There are inconsistencies in the value that is taken to represent RMR. For example, the average value for a continuous sample could be used or the lowest value obtained during the measurement could be used (Poehlman, 1989). The average value for a 25-minute continuous sample was used in this study.

Coefficient of variation is commonly used when reporting the reliability in energy expenditure studies (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, et al., 1984; Henry, et al., 1989; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, et al., 1990; Soares & Shetty, 1986; Toubro, et al., 1995; White, et al., 1996).

However, the method of the CV calculation is generally not reported. An interesting observation was seen in this study. When the CV was calculated for the group mean RMR across days the CV was 1.15% (in L/min), 1.12% (in ml kg^{-1} min^{-1}), and 1.05% (in kcal/min). When the CV was calculated for the individual variation in RMR across days the CV was 5.38% (in L/min), 5.29% (in ml kg^{-1} min^{-1}), and 5.25% (in kcal/min). CV reported either way would fall within the range of most energy expenditure reliability studies (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, et al., 1984; Henry, et al., 1989; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, et al., 1990; Soares & Shetty, 1986; Toubro, et al., 1995; White, et al., 1996). Differences in the way CV is calculated and reported could contribute to the reported variations in metabolic rate.

Respiratory Exchange Ratio

When the reliability of the respiratory exchange ratio (RER) was examined across days the group response was different than the individual response. When the mean group RER was examined with a repeated measure ANOVA it revealed that RER was not significantly different across days ($F_{3, 51} = 0.8588$, $p = 0.4685$). However, the intraclass correlation coefficient revealed that RER was not reliable across days ($R = 0.3091$). The importance of running the ANOVA and intraclass correlation coefficient is revealed when examining RER. The intra-individual variations in RER across days were large but the mean RER for the group was reliable across days.

The results of the present study are not in agreement with White and associates (1996) who examined the reproducibility of macronutrient oxidation (White, et al., 1996). They measured RER two different times with at least one day in between. These

researchers reported RER had an intraclass correlation coefficient of 0.97, indicated that RER was very reliable across days (White, et al., 1996).

The discrepancies between the present study and White and associates study (1996) could be due to the varying dietary intake between subjects. Dietary intake can alter fuel oxidation by modifying the macronutrients that are available (Goedecke, et al., 2000). Most research agrees that the percentage of fat and carbohydrates consumed in the diet are the primary determinant of RER at rest (Goedecke, et al., 2000; White, et al., 1996). This study only controlled the time of the last meal by instructing subjects to arrive for testing at least twelve hours post-absorptive. The questionnaires completed by the subject's in this study indicate that the caloric content and the macronutrient composition of the last meal varied greatly between subjects. The questionnaires also indicate that the subjects generally did not eat the same meal every night before testing. RER probably varied within-subjects and across days because of the variability in dietary intake across the fourteen day testing period.

The results if the individual RER measurement across days does offer further insight into RMR. In the present study, RMR was very reliable from day-to-day even though the individual RER was not; suggesting that regardless of the macronutrients the subject's were oxidizing RMR remained remarkably stable.

In summary, RMR is a very reliable measurement and confidence can be placed in the finding that one RMR measurement is a good estimate of the subject's true RMR.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Summary

Twenty-four hour energy expenditure is primarily composed of three components: resting metabolic rate (RMR), the thermic effect of activity (TEA), and the thermic effect of feeding (TEF). For most people RMR represents the largest portion of 24-hour energy expenditure. RMR constitutes about 60-75% of 24-hour energy expenditure in man. RMR includes the energy cost of maintaining all the physiological processes of the body. It includes the energy required to maintain body temperature at rest, to maintain electrolyte gradients, to sustain cardiovascular and pulmonary work at rest, and to provide energy used by the central nervous system and other chemical reactions. RMR represents the minimum energy requirement of an individual to sustain all physiological functions at rest. Physicians and clinicians will often measure RMR to determine a patient or clients minimum energy requirements. The present study examined if a single RMR measurement is a good estimate of the subject's true RMR.

Many factors have been show to affect RMR, such as, age, body composition, energy intake, hormones and neural control, gender, weight loss, and physical activity. Researchers examining the effect that these factors have on RMR have used cross sectional and longitudinal designs. Whether each subject acts as their own control as in a

longitudinal study or are paired with a control subject as in a cross sectional study, the sample size required to detect a particular level of metabolic response is a function of the intra-individual variability (Murgatroyd, et al., 1987). To determine what the intra-individual variability of metabolic rate is, researchers have examined the reliability of BMR, 24-hour energy expenditure, and RMR.

Henry and associates (1989) summarized 16 studies that examined within-subject variability in basal metabolic rate. Only three of these studies had more then one subject. The variability was examined from 19 days to 2 ½ years. The lowest coefficient of variation (CV) in these one-subject studies was 0.97% with the highest being 6.2% (Henry, et al., 1989). The frequency of measuring BMR during any time period varied greatly. One study reported five measurements over an eleven-day period and a CV of 0.97% (Henry, et al., 1989) while another study reported 171 measurements over a one-year period (Henry, et al., 1989) and a CV of 3.41%. Further research was conducted by Soares and Shetty (1989). They examined the daily variations of BMR in six adults. They measured BMR for 14 consecutive days, and found a CV of 1.5%. The small coefficients of variation in these studies suggested the daily variations in BMR were small.

Research examining the within-subjects variability in 24-hour energy expenditure also supports that it is a reliable measurement. These reliability studies report a CV between 1.5 to 3.2%. (Anderson, et al., 1990; Astrup, et al., 1990; DeBoer, et al., 1987; Garby, et al., 1984; Murgatroyd, et al., 1987; Ravussin, et al., 1986; Rumpler, et al., 1990; Soares & Shetty, 1986; Toubro, et al., 1995; White, et al., 1996). The small coefficients of variation reported in these studies also suggest that under controlled conditions 24-hour energy expenditure has minimal intra-individual variations from day-to-day.

However, it is less clear if RMR is also a reliable measurement. There is little to no research examining the reliability of RMR, and what is reported is inconclusive. Present day measurement of individual's caloric requirements generally measure RMR, not BMR, therefore it is important to determine if RMR is also a reliable measurement from day-to-day. The present study measured RMR on four separate days during a period of 14 days. RMR was measured for 35 minutes each time using open circuit, indirect calorimetry.

Resting metabolic rate was analyzed three ways: L/min, ml kg^{-1} min^{-1}, and kcal/min. A repeated measures ANOVA comparison was used to compare RMR across all four-test days. An intraclass correlation coefficient was used to determine the reliability of RMR over the four days. The ANOVA showed that there were no significant differences in RMR across days. The intraclass correlation coefficient showed that RMR is reliable across days.

If RMR had a lot of variability across days then multiple measurements would need to be taken to estimate a subject's true resting metabolic rate. However, RMR was found to be reliable so that one measurement is a good estimate of the subjects true RMR.

Conclusions

The following conclusions were made from this study:

1. resting metabolic rate, under controlled conditions was a very reliable measurement. The intraclass correlation coefficient was R= 0.9355 (L/min), R= 0.9743 (ml kg^{-1} min^{-1}), and R= 0.9411 (kcal/min).
2. when examining the reliability of respiratory exchange ratio (RER), the subjects' macronutrient composition and energy intake should be controlled. The reliability

of RER was low in this study (R= 0.3091), possible because the subjects' energy intake was only controlled twelve hours prior to the RMR measurement.

3. although RER was not reliable across days (R= 0.3091), RMR remained remarkable constant (R= 0.9743). This suggested that resting energy expenditure was reliable even when there was variability in the macronutrients being oxidized.

General Recommendations:

The following is a list of general recommendations based on the outcome of this research:

1. it appears a single resting metabolic rate measurement is a good estimate of an individual's true resting metabolic rate. However, if energy intake, physical activity, body mass, or body composition change, resting metabolic rate may adjust, and need to be re-measured.
2. intra-individual daily variations in resting metabolic rate are minimal. Therefore, experimental designs reporting an adjustment in resting metabolic rate can be attributed to experimental treatment effects and not to biological instability.

Recommendations for Further Research

1. macronutrient composition and energy intake should be controlled when examining the reliability of RER across days.
2. the pre-test questionnaire did not require the subject to quantify the food consumed during the last meal before each measurement of RMR. (see Appendix A5). A nutritional analysis program could have been used to determine the energy intake during the last meal if food quantities were known.

3. having the subject consume a weight maintenance diet with a controlled macronutrient composition may increase the reliability even more. This would eliminate daily variations in energy intake.
4. having the subjects rest in the lab for 30 minutes or longer may provide lower resting metabolic rate readings and further increase the reliability.

APPENDIX A

FORMS

Appendix A1: Pre-test Instructions and Scheduled Testing Sessions

UNIVERSITY OF NEVADA, LAS VEGAS
KINESIOLOGY DEPARTMENT
EXERCISE PHYSIOLOGY LABORATORY

Resting Metabolism Study
By
Amy Thompson

Subject Pre-Test Instructions

To ensure every subject is measured under the same conditions it is important that you follow these instructions. If you are forced to deviate from these instructions please notify me when you arrive at the lab for testing.

1. Do not eat or drink anything, except water, 12 hours before the test.
2. All testing must be done first thing in the morning.
3. It is important that you do the same routine each morning from the time you awake until your test. Try to wake up around the same time, and follow the same toiletries routine.
4. Try to get 7-8 hours sleep the night before the test.
5. No exercise or strenuous physical activity 12 hours before the test.
6. Avoid physical activity from the time you awake until you are tested.
7. Perform only minimal toiletries the morning of your test.
8. No alcohol consumption 12 hours before the test.
9. No coffee or caffeine drinks 12 hours before the test.
10. No smoking 12 hours before the test.
11. Every subject must agree to be tested at least one Saturday.
12. Please arrive 10 minutes prior to your testing time each day.

You have scheduled the following testing times:

1. Day: _____ Date: _____ Time: _____ Arrival Time: _____
2. Day: _____ Date: _____ Time: _____ Arrival Time: _____
3. Day: _____ Date: _____ Time: _____ Arrival Time: _____

4. Day: _____ Date: _____ Time: _____ Arrival Time: _____

5. Day: _____ Date: _____ Time: _____ Arrival Time: _____

Location: MPE 326 (first floor of gym, opposite weight room)
If you need to change an appointment please contact Amy @ 315-2115. or athompson@lvcm.com A few days notice is greatly appreciated. If you are running a little late you can call the lab. I will be there 30 minutes before test time 895-2726

Appendix A2: Subject Recruitment Form

Resting Metabolic Rate Study

Amy Thompson
Ph: 315-2115
E-mail: athompson@lvcm.com

Purpose:
Excess body fat has become a major concern nationally and individually. Weight-loss is a major financial part of our gross national product. Resting metabolic rate is often the reason for which many individuals attribute their weight gain. Considerable research exists on how resting metabolic rate is influenced by exercise, caloric intake, age, gender and other many other factors. However, there is no research determining the day-to-day variability in an individual's resting metabolic rate. It is unknown if an individual's resting metabolic rate will fluctuate from day to day, and if so, how much is that fluctuation. It appears that much of the already completed research is questionable or dependent on the normal variation of resting metabolic rate. This research will provide data which is not known and that will be invaluable to weight-loss research.

To the average man and women "on the street", resting metabolic rate is the number of calories used per day while doing nothing. All other calories expended or ingested are subtracted or added to the (RMR) resulting in weight gain or weight lost. Individuals with high RMR tend to lose weight easily or who are thin, whereas individuals with a low RMR gain weight easily or who are overweight. Often individual's use lowered RMR as an unconfirmed reason why they are overweight. In the laboratory, resting metabolic rate is determined by measuring the amount of oxygen used per minute. This can then be extrapolated to the amount of oxygen used per hour and per day. Oxygen is then converted to calories. This is called Indirect Calorimetry and is used by all physiology and nutrition laboratories.

Currently, the day-to-day, or the hour-by-hour variability of RMR is not known.

The purpose of this study is to measure the daily variations in RMR. The results of this research are mandatory for the interpretation of all RMR research, past and future. The data on the daily fluctuation of RMR will greatly enhance the explanation of the effect of diet and exercise on weight loss.

Subject Requirements:

1. Commit to meet with me for 5 days, including one Saturday.
2. Each meeting will take 40 minutes.
3. You will be required to lay supine with a facemask on for 35 minutes during each appointment.
4. You will need to be in a fasted state, having consumed your last meal at least 12 hours prior to our appointment.

5. No caffeine or cigarettes for at least 12 hours prior to each appointment.
6. All measurements will need to be within 2 hours after you wake up in the morning.
7. Your body weight, height, and body fat will be determined.
8. Bioelectrical impendence and skin folds will be used to analyze your body fat.

Name: _____

Ph: _____E-mail: _____

☐ I am interested in being a subject during the Fall

Please indicate when your first class begins on each day of the week.

Monday: ___Tuesday: ____Wednesday: ____Thursday: _____Friday: ___

☐ I am not interested at this time

Appendix A3: Informed Consent

University of Nevada, Las Vegas
Department of Kinesiology

Informed Consent

Title: The Day-by-Day Reliability of Resting Metabolic Rate

You are invited to participate in a research study examining the stability of resting metabolic rate. You need to be between the ages of 18 and 35, and not on a diet.

Procedure

You will be asked to participate in five data collection sessions lasting approximately 45 minutes each during a fourteen-day period of time. Each data collection day, you will be asked to report to the Exercise Physiology Laboratory in the morning following an overnight fast. Your resting metabolic rate will be measured by open circuit spirometry for 35 minutes while you are lying on an examination table. You will be asked to refrain from strenuous physical activity 12 hours prior to each test day. You also be asked to refrain from alcohol, caffeine, and cigarettes 12 hours prior to each test day.

Risks and Discomforts

Other than being in a laboratory setting, this research study does not require you to engage in any physical activity. The metabolic analysis equipment requires the use of a breathing mask. It is possible that you may be apprehensive when first breathing through this mask. Apprehension is commonly relieved as you realize that it offers no resistance and is easy to use.

You may stop the test or discontinue your participation in this study at any time. A principal investigator will be present at each data collection session to oversee the testing and to answer any inquiries you have concerning the procedures. The principal investigator is trained in first aid procedures and would administer necessary first aid in the unlikely event you need it.

Expected Benefits from Testing

A benefit to you is the opportunity to know your resting metabolic rate is. You will also be told how many calories you should consume to be in energy balance. This may be useful when trying to either maintain lose, or gain weight. All parameters evaluated in the study will be available for review by you upon request.

It is hoped that you benefit from being a participant. You are welcome to make an appointment to review the results of the study, and if you wish to have a copy of the

results of the study, please let us know.

Confidentiality

The names of all subjects will be held in strict confidence and will not be revealed in any publication or reports resulting from this study. All references to subjects will be made solely on the basis of a subject number assigned for the study. The code sheet relating subject names to subject numbers will be maintained in a locked file at UNLV.

Freedom of Consent

Your consent to participate in this study and to perform these tests is strictly voluntary. You are free to withdraw your consent and to stop the testing at any point, without any penalty or loss of benefits to which you are otherwise entitled.

Your signature indicates that you have read and understand the procedures, have had all of your questions answered, understand any risks involved in participating, agree to voluntarily participate in all phases of the study as described above, and understand that you may withdraw from the study at any time. For any questions regarding your participation in this study, please contact Amy Thompson at 499-8673. For questions regarding the rights of research subjects, please contact the UNLV Office for the Protection of Research Subjects at 895-2794.

I have read this form carefully and I am aware of tests/procedures to be performed. Knowing these risks and having the opportunity to ask questions that have been answered to my satisfaction, I consent to participate in the tests. I understand that I have the right to withdraw from this study at any time without prejudice.

Name of Subject	Signature of Subject	Date

Name of Witness	Signature of Witness	Date

PRINCIPAL INVESTIGATORS:
Amy Thompson, B.A.
Lawrence Golding, Ph.D.

Appendix A4: Human Subjects Approval

Biomedical Sciences Institutional Review Board Approval Notice

DATE: March 13, 2002

TO: Amy Thompson, Kinesiology
Dr. Laurence Golding, (Advisor)
M/S 3034

FROM: Dr Jack Young, Chair
UNLV Biomedical Sciences Institutional Review Board

RE: Status of Human Subject Protocol Entitled: *The Day-by Day Reliability of Resting Metabolic Rate*

OPRS# 504S1201-199

This memorandum is official notification that the UNLV Biomedical Sciences Institutional Review Board has **approved** the protocol for the project listed above and research on the project may proceed. This approval is effective from the date of this notification and will continue through **March 13, 2002**, a period of one year from the initial review.

Should the use of human subjects described in this protocol continue beyond a one-year period from the initial review, it will be necessary to request an extension. Should you initiate **any change(s)** to the protocol, it will be necessary to request additional approval for such change(s) in writing through the Office for the Protection of Research Subjects.

If you have any questions or require any assistance, please contact Brenda Durosinmi, in the Office for the Protection of Research Subjects at 895-2794.

cc: OPRS file

Appendix A5: Initial Subject Questionnaire

UNIVERSITY OF NEVADA, LAS VEGAS
KINESIOLOGY DEPARTMENT
EXERCISE PHYSIOLOGY LABORATORY

Resting Metabolism Study
By
Amy Thompson

Initial Subject Questionnaire

Please read carefully: The items above your % body fat we will complete, but your itemized health habits are important for us. Please fill out this questionnaire honestly, do not respond based on what you think we want you to say. Your resting metabolic rate can fluctuate based on your activities and health habits. We need to know your habits to accurately evaluate your measurements. Thank you in advance for your time and participation.

Name: _____ Age: _____ Birthdate:_____

Body weight: _____lbs Height: _____ins

Resting heart rate: _____ Resting Blood Pressure: _____/_____

Bioimpedence: _____Ohms BIA % Fat:_____

Skinfolds:

Abdomin _____mm
Illium _____mm
Triceps _____mm
Thigh _____mm
Total _____mm Skinfolds % Body Fat: _____%

Do you smoke? YES / NO Cigarettes / cigars / pipe / smokeless tobacco
How much per day? _____

1. Please list any medications, supplements, vitamins you take on a regular basis.

_____

_____

2. Are you presently on a diet? YES / NO
   If yes, please explain kind, how long, etc._____

   _____

   _____

   _____

3. Briefly describe your eating habits:

Eat 3 meals a day. _____Which? (Circle: Breakfast-Lunch- Dinner)
Eat 2 meals a day _____Which? (Circle: Breakfast-Lunch- Dinner)
Eat 1 meal a day _____Which? (Circle: Breakfast-Lunch- Dinner)
Eat spasmodically or irregularly _____
Often snack between meals _____
Do you eat at least one serving of the following everyday. Check
Vegetables:_____Fruits_____Meat/poultry/chicken _____
Fat _____starches (bread/pasta/rice/potato_____
Sweets_____
Make comments about the above or any other comments about your diet.

_____

_____

_____

4. Would you consider yourself weight stable, or are you presently gaining or losing weight, please explain your response?

   _____

   _____

   _____

5. What is the heaviest weight you have been? _____ When was that? _____

6. What was your weight when you graduated high school? _____

7. What do you consider your ideal weight? _____

8. Approximately how many hours sleep do you get per night?_____
   Usual bedtime:_____Usual rising time_____ Awake refreshed? YES / NO

9. Do you regularly perform a *formal* exercise routine? YES / NO. If yes:
   Days per week:_____Time:_____Duration (how long):_____
   What type of exercise? (Run, walk, swim, cycle, row, other machines, weights, etc.)
   List physical activity in detail and explain, how much? How hard? How long?
   _____
   _____
   _____
   _____

10. If you answered yes to question 10, how long have you been exercising regularly?
    days_____ weeks_____ months_____years_____

11. What other recreational activity do you engage in regularly? (Dance, walk, gardening, heavy housework.) Explain in detail.
    _____
    _____
    _____

ONLY FEMALES NEED TO FILL OUT THE NEXT SECTION:

1. When was your last menstrual cycle? _____

2. Is your menstrual cycle generally regular? YES NO
   a. If no, please explain.
      _____
      _____

Appendix A6: Daily questionnaire

UNIVERSITY OF NEVADA, LAS VEGAS
KINESIOLOGY DEPARTMENT
EXERCISE PHYSIOLOGY LABORATORY

Resting Metabolism Study
By
Amy Thompson

Subject Questionnaire

Please read carefully. This study is determining how much your resting metabolism changes (fluctuates) from day to day. It is important for us to know exactly what you during the previous 24 hours. Try to be as accurate as you can. The items above your name we will complete, but your itemized activities are important for us. You will be completing this questionnaire everyday you're tested.

Trial: 1---2---3---4---5---6---7---8---9. Date: _____ Time: _____

Room temperature:_____Barometric Pressure:_____mm hg. Humidity: _____

Metabolic Cart #: _____. Body Weight: _____lbs.

Name: _____ RHR: _____ BP: _____/_____

1. How many hours sleep did you get last night? _____. Were they restful?

2. *Exactly* when was your last meal?

3. Please list *everything* you ate and drank and the approximate quantity of each item (see instructions)

_____
_____
_____
_____

4. Please list anything you ate or ingested after your last meal (snacks, drinks, aspirin, other medications, etc)

5. If you drink caffeinated beverages (coffee, tea, colas) When and what was your last caffeinated beverage?

6. When did you last *formally* exercise?
Date:_____Time of day:_____Duration (how long):_____
What type of exercise? (Run, walk, swim, cycle, row, other machines, weights, etc.)
List activity in detail and explain, How much? How hard? How long?

_____

_____

_____

7. What other physical activity have you done in the past 24 hours? (Dance, walk, gardening, heavy housework.) Explain in detail.

_____

_____

_____

8. If you smoke when was your last cigarette? _____

ONLY FEMALES NEED TO FILL OUT THE NEXT SECTION:

1. When was your last menstrual cycle? _____

2. If you are presently in the middle of your menstrual cycle, when was your start date?

_____

APPENDIX B

RAW DATA

Appendix B1: Daily Resting Metabolic Rate Measurements

Subject One-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.100303	0	1.723956	0	7.746113
1	0.190943	0.261791	3.28183	4.499532	1.371043	6.984631
1.5	0.252197	0.222199	4.334634	3.819053	0.881055	5.750504
2	0.315576	0.275659	5.423967	4.737885	0.873509	7.063405
2.5	0.202072	0.169748	3.473109	2.917542	0.840038	4.476991
3	0.271463	0.252713	4.665762	4.34351	0.930933	6.45947
3.5	0.299743	0.277705	5.151837	4.773062	0.926478	7.063405
4	0.244994	0.219278	4.210829	3.768847	0.895037	6.013084
4.5	0.250878	0.237384	4.311974	4.080041	0.946212	6.695792
5	0.201222	0.200128	3.458498	3.439703	0.994565	5.40915
5.5	0.177646	0.171628	3.053294	2.949856	0.966123	4.700184
6	0.194873	0.188962	3.349383	3.247788	0.969668	5.094054
6.5	0.215799	0.210753	3.709053	3.622316	0.976615	5.474795
7	0.243451	0.229211	4.184313	3.939573	0.94151	6.091858
7.5	0.31515	0.290688	5.416637	4.9962	0.92238	7.877403
8	0.205093	0.182923	3.525044	3.143989	0.891901	5.356634
8.5	0.195156	0.195148	3.354249	3.354101	0.999956	5.658601
9	0.230523	0.223866	3.96212	3.847698	0.971121	6.288793
9.5	0.246916	0.231017	4.243868	3.970599	0.935608	6.774567
10	0.200796	0.193756	3.451175	3.330174	0.964939	5.881794
10.5	0.239287	0.25039	4.112737	4.303574	1.046402	6.958373
11	0.22343	0.205083	3.840203	3.524863	0.917885	6.0656
11.5	0.203137	0.204897	3.491415	3.521673	1.008667	6.183761
12	0.221597	0.218383	3.808692	3.753461	0.985499	6.590761
12.5	0.232534	0.237291	3.996683	4.078435	1.020455	6.748308
13	0.169616	0.16184	2.915282	2.78163	0.954155	4.7527
13.5	0.206219	0.209569	3.544387	3.601966	1.016245	5.816149
14	0.22739	0.218057	3.908259	3.747863	0.95896	5.855536
14.5	0.252129	0.227502	4.333465	3.910191	0.902324	6.643277
15	0.216698	0.206977	3.724503	3.557423	0.95514	6.052471
15.5	0.205413	0.192929	3.530538	3.315965	0.939224	5.697988
16	0.217597	0.212185	3.739954	3.646937	0.975129	6.275664
16.5	0.189606	0.175971	3.258859	3.024501	0.928086	5.26473
17	0.239053	0.232493	4.108717	3.995967	0.972558	6.86647
17.5	0.230258	0.220213	3.957561	3.784906	0.956374	6.367567
18	0.215735	0.199793	3.707952	3.43394	0.926102	6.091858
18.5	0.22262	0.210539	3.826275	3.618637	0.945734	6.564502
19	0.197792	0.194886	3.399543	3.349608	0.985311	6.013084
19.5	0.208379	0.203313	3.581511	3.494444	0.97569	6.118116
20	0.206779	0.195336	3.554011	3.357335	0.944661	6.118116
20.5	0.208099	0.195756	3.576708	3.364558	0.940686	6.19689

21	0.226604	0.220247	3.894759	3.785489	0.971944	6.695792
21.5	0.217497	0.206903	3.738235	3.556139	0.951288	6.262535
22	0.222236	0.216891	3.819686	3.727813	0.975947	6.433213
22.5	0.20017	0.18832	3.440418	3.236748	0.940801	5.750504
23	0.214473	0.21003	3.686252	3.609889	0.979284	6.301922
23.5	0.21269	0.235329	3.655607	4.044715	1.106441	6.052471
24	0.233355	0.236404	4.010791	4.063194	1.013065	6.118116
24.5	0.226573	0.212215	3.894223	3.647451	0.936631	6.19689
25	0.203302	0.202937	3.494253	3.487973	0.998203	5.93431
25.5	0.21631	0.204415	3.717823	3.513389	0.945013	6.354438
26	0.204008	0.199141	3.506396	3.422743	0.976143	6.144374
26.5	0.222159	0.218239	3.818356	3.75099	0.982357	6.32818
27	0.205264	0.194906	3.527976	3.349945	0.949537	5.908052
27.5	0.186829	0.19706	3.211132	3.386967	1.054758	5.461666
28	0.221452	0.228301	3.806206	3.923931	1.03093	5.960568
28.5	0.220864	0.202222	3.796099	3.475693	0.915596	5.855536
29	0.202841	0.19042	3.486334	3.272841	0.938763	5.763633
29.5	0.202858	0.187803	3.486617	3.227865	0.925787	5.829278
30	0.199364	0.176419	3.426564	3.0322	0.88491	5.697988
30.5	0.202357	0.187785	3.478014	3.227554	0.927988	5.776762
31	0.218817	0.194538	3.760913	3.34362	0.889045	6.0656
31.5	0.214257	0.192053	3.682536	3.300907	0.896368	5.908052
32	0.168135	0.144794	2.889814	2.488642	0.861177	4.713313
32.5	0.190221	0.188693	3.269416	3.243154	0.991967	5.448537
33	0.202297	0.19686	3.476972	3.38354	0.973128	5.225344
33.5	0.260144	0.241546	4.471225	4.151576	0.92851	6.354438
34	0.248203	0.222151	4.265993	3.818221	0.895037	6.091858
34.5	0.182715	0.169639	3.140415	2.915678	0.928437	4.857732
35	0.205701	0.221261	3.535479	3.802929	1.075648	5.776762
Mean	0.215994	0.208511	3.712391	3.583787	0.947124	6.048157
SD	0.03859	0.029624	0.663266	0.50917	0.134239	0.645915

Subject One-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.005141	0.113374	0.089764	1.979553	22.05285	4.930593
1	0.161548	0.190009	2.820675	3.317613	1.176177	4.996334
1.5	0.256868	0.206995	4.484999	3.614199	0.805842	5.180409
2	0.293196	0.214362	5.119296	3.742825	0.731121	5.390781
2.5	0.253309	0.185596	4.422862	3.240561	0.732684	4.759665
3	0.233435	0.18292	4.075855	3.193848	0.783602	4.720221
3.5	0.20692	0.169436	3.612881	2.958409	0.81885	4.444108
4	0.205448	0.174008	3.587188	3.038235	0.846969	4.57559
4.5	0.224735	0.188564	3.923946	3.292389	0.839051	4.996334
5	0.205247	0.179112	3.583675	3.127349	0.872666	4.838555
5.5	0.227572	0.205302	3.973485	3.584632	0.902138	5.495967

6	0.211671	0.195194	3.69584	3.408144	0.922157	5.259299
6.5	0.155165	0.146806	2.709234	2.563283	0.946128	3.997067
7	0.194401	0.177037	3.394297	3.091125	0.910682	5.180409
7.5	0.160381	0.155873	2.800304	2.721584	0.971889	4.417811
8	0.154272	0.141236	2.693642	2.466029	0.9155	4.115401
8.5	0.196449	0.18389	3.430054	3.210778	0.936072	5.298744
9	0.215561	0.19421	3.763764	3.390972	0.900952	5.430226
9.5	0.1663	0.153114	2.903643	2.673411	0.920709	4.207439
10	0.147382	0.132469	2.573331	2.312954	0.898817	3.734102
10.5	0.191816	0.179149	3.34916	3.127992	0.933963	5.022631
11	0.171385	0.163063	2.992433	2.847124	0.951441	4.365218
11.5	0.182818	0.167308	3.192059	2.921249	0.915161	4.549294
12	0.118018	0.110488	2.060627	1.929148	0.936195	3.024097
12.5	0.172632	0.16986	3.014206	2.965804	0.983942	4.483552
13	0.161312	0.149323	2.816551	2.60723	0.925682	4.023364
13.5	0.182072	0.163198	3.179028	2.849495	0.896341	4.391515
14	0.217448	0.187722	3.796714	3.277678	0.863293	5.206706
14.5	0.19364	0.167632	3.381019	2.926907	0.865688	4.680777
15	0.234224	0.208294	4.089633	3.636879	0.889292	5.903563
15.5	0.211707	0.209477	3.696465	3.657543	0.98947	5.522264
16	0.199591	0.181281	3.484927	3.165228	0.908262	5.180409
16.5	0.197967	0.179604	3.456564	3.135949	0.907244	5.680043
17	0.209502	0.197011	3.657972	3.439882	0.940379	6.416345
17.5	0.176336	0.176433	3.07888	3.080575	1.00055	5.390781
18	0.173173	0.168023	3.023651	2.933736	0.970263	5.338189
18.5	0.155084	0.154855	2.707818	2.70382	0.998524	4.996334
19	0.153703	0.150665	2.683705	2.630651	0.980231	4.838555
19.5	0.143926	0.133822	2.512989	2.336574	0.929799	4.365218
20	0.144359	0.136366	2.52056	2.380998	0.944631	4.312625
20.5	0.178569	0.162663	3.117877	2.84014	0.910921	4.970037
21	0.172831	0.153481	3.017684	2.679835	0.888043	4.628183
21.5	0.173398	0.146737	3.027576	2.562083	0.846249	4.4967
22	0.161004	0.134089	2.811175	2.341243	0.832834	4.27318
22.5	0.180232	0.153801	3.146909	2.685408	0.853348	4.970037
23	0.156821	0.150272	2.738141	2.623798	0.958241	4.167994
23.5	0.170688	0.141829	2.980266	2.476376	0.830925	4.233736
24	0.208266	0.169789	3.636391	2.964575	0.815252	5.469671
24.5	0.163599	0.14906	2.856491	2.602632	0.911129	4.417811
25	0.198321	0.160995	3.462755	2.811028	0.811789	5.022631
25.5	0.156573	0.129383	2.733815	2.259071	0.826344	4.233736
26	0.17879	0.142867	3.121736	2.494509	0.799077	4.772814
26.5	0.17386	0.145903	3.035652	2.547518	0.839199	4.812259
27	0.182959	0.149619	3.194518	2.612397	0.817775	5.022631
27.5	0.17597	0.143584	3.072486	2.507026	0.81596	4.812259
28	0.17677	0.143886	3.08646	2.51229	0.813971	4.79911
28.5	0.19438	0.15798	3.393933	2.758379	0.812738	5.311892
29	0.171686	0.139924	2.99769	2.443111	0.814998	4.615035
29.5	0.187964	0.157783	3.281903	2.754947	0.839436	5.114668
30	0.177901	0.148409	3.106215	2.591266	0.83422	5.022631

30.5	0.167133	0.135415	2.918204	2.364397	0.810224	4.628183
31	0.141681	0.11772	2.473802	2.055433	0.83088	3.997067
31.5	0.155702	0.132349	2.718607	2.310863	0.850017	4.365218
32	0.211366	0.198731	3.690515	3.4699	0.940221	5.272447
32.5	0.232454	0.210731	4.058719	3.679429	0.906549	5.364485
33	0.151155	0.139946	2.639208	2.443498	0.925845	3.615768
33.5	0.193274	0.182777	3.374629	3.191336	0.945685	4.812259
34	0.162393	0.16021	2.835427	2.797313	0.986558	4.154846
34.5	0.166329	0.152061	2.904151	2.65503	0.914219	4.075957
35	0.147703	0.136782	2.578948	2.388261	0.92606	3.628916
Mean	0.181935	0.162741	3.176651	2.841506	1.193199	4.753467
SD	0.037499	0.024842	0.654748	0.433747	2.530362	0.583515

Subject One-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.05758	0	0.999015	0	5.316538
1	0.05526	0.112711	0.958762	1.955549	2.039659	3.610485
1.5	0.144753	0.149811	2.511495	2.599245	1.034939	4.258521
2	0.154692	0.132775	2.683932	2.303668	0.858318	3.703061
2.5	0.215489	0.17379	3.738771	3.01528	0.80649	4.84043
3	0.203671	0.16686	3.53373	2.895049	0.819262	4.549476
3.5	0.212001	0.173171	3.678259	3.004543	0.816838	4.642052
4	0.167437	0.137147	2.905051	2.379519	0.819097	3.729512
4.5	0.191221	0.160077	3.317715	2.777354	0.837129	4.324647
5	0.171916	0.140313	2.982776	2.434453	0.81617	3.994016
5.5	0.188622	0.160881	3.272616	2.791308	0.852929	4.456899
6	0.189917	0.156952	3.295087	2.72314	0.826424	4.284971
6.5	0.234032	0.191654	4.060489	3.325235	0.818925	5.316538
7	0.266653	0.216661	4.626468	3.759101	0.812521	6.083601
7.5	0.227171	0.175922	3.941452	3.052274	0.774404	5.36944
8	0.154478	0.125749	2.680215	2.181757	0.814023	4.046917
8.5	0.19033	0.165517	3.302258	2.871739	0.869629	5.237187
9	0.192798	0.159057	3.345068	2.759672	0.824997	4.84043
9.5	0.233375	0.176841	4.049094	3.06822	0.757755	5.70007
10	0.214772	0.163353	3.726329	2.834202	0.760588	5.382664
10.5	0.201372	0.157681	3.493837	2.735788	0.783033	5.171062
11	0.200473	0.160799	3.478235	2.789891	0.8021	5.290088
11.5	0.187818	0.150019	3.258672	2.602846	0.798745	4.919782
12	0.208904	0.166564	3.62451	2.889912	0.797325	5.488466
12.5	0.202049	0.160101	3.505582	2.777769	0.792385	5.250412
13	0.218859	0.172343	3.79723	2.990187	0.787465	5.607493
13.5	0.199087	0.16035	3.454199	2.782104	0.805427	5.104935

14	0.199758	0.157884	3.465829	2.739314	0.790378	5.104935
14.5	0.20001	0.159521	3.470203	2.76772	0.797567	5.290088
15	0.20787	0.166676	3.606584	2.891857	0.801827	5.448791
15.5	0.207695	0.167404	3.603533	2.904486	0.806011	5.39589
16	0.20235	0.159857	3.5108	2.773546	0.790004	5.104935
16.5	0.194783	0.156644	3.379513	2.717796	0.804198	5.025584
17	0.192493	0.153073	3.339785	2.655843	0.795214	4.972683
17.5	0.200315	0.159271	3.475499	2.763377	0.795102	5.157836
18	0.211412	0.1717	3.668024	2.979018	0.812159	5.342989
18.5	0.192016	0.149404	3.331504	2.592187	0.778083	4.800755
19	0.201355	0.161845	3.493545	2.808038	0.803779	5.14461
19.5	0.212892	0.16886	3.693701	2.929741	0.793172	5.409115
20	0.218654	0.170155	3.793687	2.952214	0.778191	5.501692
20.5	0.181279	0.144914	3.145224	2.514277	0.799395	4.642052
21	0.224863	0.178355	3.901416	3.094495	0.793172	5.713295
21.5	0.198456	0.158047	3.443244	2.742148	0.796385	5.078485
22	0.199825	0.157637	3.466992	2.735035	0.788878	5.104935
22.5	0.213971	0.173377	3.712427	3.008111	0.810281	5.528142
23	0.193512	0.154886	3.35747	2.687292	0.800392	4.893332
23.5	0.207525	0.164846	3.600593	2.860108	0.794344	5.223962
24	0.214032	0.17013	3.713494	2.951789	0.794882	5.475241
24.5	0.196223	0.151873	3.4045	2.635019	0.773981	5.012358
25	0.200004	0.159444	3.470102	2.766382	0.797205	5.237187
25.5	0.200117	0.160602	3.472058	2.786477	0.802544	5.14461
26	0.203821	0.160808	3.536323	2.790048	0.788969	5.223962
26.5	0.212434	0.1752	3.685756	3.039746	0.824728	5.435565
27	0.195397	0.153467	3.390174	2.662682	0.785412	4.893332
27.5	0.202415	0.163674	3.511936	2.839764	0.808604	5.210736
28	0.198397	0.158476	3.442213	2.749586	0.798784	4.999133
28.5	0.209062	0.163658	3.627254	2.839492	0.782821	5.316538
29	0.188887	0.150757	3.277227	2.615653	0.79813	4.866881
29.5	0.203601	0.165184	3.532513	2.86597	0.811312	5.210736
30	0.208323	0.165436	3.61443	2.870337	0.794133	5.210736
30.5	0.196909	0.154104	3.4164	2.673722	0.782614	4.959457
31	0.17571	0.140176	3.04859	2.432076	0.797771	4.483349
31.5	0.157266	0.122175	2.728593	2.119759	0.776869	3.994016
32	0.162824	0.141111	2.825014	2.448302	0.866651	4.23207
32.5	0.211888	0.178994	3.676289	3.105575	0.844758	5.012358
33	0.222614	0.188422	3.862383	3.269156	0.846409	4.81398
33.5	0.226944	0.182572	3.937514	3.167646	0.804479	4.734629
34	0.226241	0.180654	3.925309	3.134369	0.798502	4.893332
34.5	0.203374	0.163062	3.528575	2.829146	0.801782	4.628827
MEAN	0.19572	0.159551	3.395769	2.768234	0.813572	4.976708

SD	0.035685	0.02011	0.619147	0.348906	0.182024	0.50471

Subject One-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.015803	0.120718	0.27162	2.074835	7.638751	5.400691
1	0.155066	0.182946	2.665201	3.144388	1.179794	5.241064
1.5	0.252901	0.206866	4.346741	3.555504	0.81797	5.374086
2	0.274001	0.196672	4.709385	3.380301	0.71778	5.227762
2.5	0.213814	0.159872	3.674937	2.747802	0.747714	4.190191
3	0.237882	0.184235	4.08859	3.166539	0.774482	4.762185
3.5	0.241128	0.191263	4.144395	3.287337	0.793201	4.97502
4	0.212382	0.167064	3.650315	2.871411	0.78662	4.469537
4.5	0.247912	0.198571	4.260987	3.412932	0.800972	5.453899
5	0.218928	0.179687	3.762827	3.088367	0.820757	4.948415
5.5	0.201057	0.168437	3.455666	2.895019	0.83776	4.682372
6	0.199561	0.172511	3.429952	2.965039	0.864455	4.802091
6.5	0.156767	0.140341	2.694435	2.412106	0.895218	3.844333
7	0.223796	0.196372	3.846495	3.375136	0.877458	5.400691
7.5	0.211299	0.189187	3.631696	3.25165	0.895353	5.134646
8	0.180987	0.165423	3.110719	2.843215	0.914006	4.442933
8.5	0.148902	0.126554	2.55926	2.17514	0.84991	3.671405
9	0.185179	0.169	3.182758	2.904692	0.912634	4.762185
9.5	0.160864	0.146069	2.764849	2.510569	0.908031	4.017262
10	0.209804	0.176569	3.605998	3.034773	0.84159	4.948415
10.5	0.21895	0.182018	3.763198	3.128427	0.831321	5.214459
11	0.231324	0.202749	3.975888	3.484747	0.87647	5.666734
11.5	0.25717	0.200623	4.420113	3.448206	0.780117	6.18552
12	0.202201	0.169905	3.475335	2.920237	0.840275	5.467201
12.5	0.196558	0.173701	3.37834	2.985485	0.883714	5.347481
13	0.23894	0.20667	4.106774	3.552141	0.864947	6.518075
13.5	0.216966	0.189767	3.729095	3.261612	0.874639	5.773152
14	0.207958	0.178985	3.574278	3.076299	0.860677	5.786453
14.5	0.222423	0.199616	3.822898	3.430899	0.89746	6.305239
15	0.192616	0.177284	3.310589	3.047076	0.920403	5.507108
15.5	0.211682	0.186149	3.638276	3.19943	0.879381	5.852965
16	0.204281	0.189703	3.511086	3.260518	0.928635	5.892871
16.5	0.137815	0.124476	2.368693	2.139437	0.903214	3.88424
17	0.160598	0.152812	2.76028	2.626454	0.951517	4.655767
17.5	0.18154	0.168399	3.120226	2.894361	0.927613	5.108042
18	0.185978	0.155913	3.196496	2.679757	0.838342	4.828696

18.5	0.151228	0.121652	2.599238	2.090898	0.804427	3.88424
19	0.171448	0.141253	2.946771	2.427778	0.823877	4.496141
19.5	0.188428	0.159767	3.238611	2.745998	0.847894	4.762185
20	0.209356	0.167508	3.598301	2.879046	0.800113	4.921812
20.5	0.198805	0.150329	3.416967	2.583788	0.756164	4.655767
21	0.184251	0.139616	3.166812	2.399658	0.757752	4.54935
21.5	0.199952	0.157177	3.436667	2.701486	0.786077	5.081438
22	0.1955	0.150185	3.360157	2.581296	0.768207	4.948415
22.5	0.185943	0.146912	3.195899	2.525044	0.790089	4.66907
23	0.176451	0.134486	3.032752	2.311471	0.76217	4.403026
23.5	0.178785	0.143034	3.072872	2.458399	0.800033	4.602559
24	0.179708	0.144533	3.088728	2.48416	0.804266	4.469537
24.5	0.185918	0.139019	3.195471	2.389393	0.747744	4.522746
25	0.197044	0.15485	3.386696	2.661489	0.785866	4.97502
25.5	0.17616	0.133731	3.027755	2.298494	0.759141	4.30991
26	0.203521	0.152744	3.49801	2.625286	0.750508	5.081438
26.5	0.188437	0.154972	3.238761	2.663588	0.82241	4.73558
27	0.181487	0.136228	3.119306	2.341411	0.750619	4.363119
27.5	0.22837	0.178834	3.925108	3.073708	0.783089	5.799756
28	0.202838	0.171618	3.486271	2.949683	0.846086	5.108042
28.5	0.189485	0.1479	3.256769	2.542027	0.780537	4.629163
29	0.179441	0.150831	3.084135	2.592405	0.840561	4.615861
29.5	0.194635	0.153996	3.34529	2.646801	0.791202	4.841998
30	0.17861	0.139868	3.069866	2.403978	0.783089	4.536047
30.5	0.189546	0.15057	3.257829	2.58792	0.79437	4.921812
31	0.152369	0.117828	2.618842	2.025172	0.773308	3.990658
31.5	0.178389	0.150534	3.066064	2.587303	0.843851	4.762185
32	0.189533	0.167138	3.257595	2.872684	0.881842	4.73558
32.5	0.184737	0.147806	3.175161	2.540415	0.80009	4.216795
33	0.212149	0.169481	3.646305	2.912949	0.798877	4.8553
33.5	0.205225	0.159685	3.527311	2.744586	0.778096	4.815394
34	0.189862	0.144972	3.263247	2.491703	0.763565	4.708976
34.5	0.185658	0.148363	3.191001	2.549988	0.799119	4.841998
35	0.17707	0.143412	3.043394	2.464897	0.809917	4.629163
Mean	0.194362	0.162399	3.340605	2.791239	0.927402	4.902618
SD	0.034317	0.022643	0.589831	0.389183	0.816691	0.584563

Subject Two-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.004396	0.099154	0.064043	1.444633	22.55732	7.916004

1	0.330744	0.302075	4.818788	4.4011	0.913321	8.628573
1.5	0.285605	0.205372	4.161126	2.992172	0.719077	5.596913
2	0.282472	0.20778	4.115483	3.027258	0.735578	5.959675
2.5	0.247076	0.179202	3.599783	2.610892	0.725292	5.285973
3	0.308962	0.219867	4.501436	3.203365	0.711632	6.607466
3.5	0.253203	0.179495	3.689053	2.615164	0.708898	5.441442
4	0.253454	0.179883	3.692708	2.620805	0.709724	5.493266
4.5	0.292948	0.2178	4.268123	3.173247	0.743476	6.451996
5	0.207801	0.151289	3.02756	2.20421	0.728048	4.586359
5.5	0.212426	0.154909	3.094948	2.25695	0.729237	4.702961
6	0.23841	0.176816	3.473528	2.576121	0.741644	5.415531
6.5	0.241909	0.183245	3.524498	2.669802	0.757498	5.467355
7	0.233934	0.172449	3.40831	2.512509	0.737172	5.130503
7.5	0.212268	0.150388	3.092653	2.19108	0.708479	4.599315
8	0.203334	0.144601	2.962487	2.106763	0.711147	4.508624
8.5	0.196145	0.145728	2.857745	2.123188	0.742959	4.456801
9	0.224065	0.1589	3.26453	2.3151	0.709168	4.910254
9.5	0.242078	0.172806	3.526964	2.517699	0.713843	5.208238
10	0.248042	0.17431	3.613863	2.539618	0.702743	5.208238
10.5	0.221781	0.154751	3.231251	2.254655	0.697766	4.664094
11	0.252914	0.179772	3.684845	2.61919	0.710801	5.363708
11.5	0.229604	0.165917	3.345223	2.417338	0.722624	4.936166
12	0.242024	0.180603	3.526184	2.631299	0.746217	5.260062
12.5	0.235139	0.174282	3.425868	2.539205	0.741186	5.104591
13	0.252129	0.191975	3.673402	2.796992	0.761417	5.622824
13.5	0.19717	0.149107	2.872677	2.172425	0.756237	4.392022
14	0.187937	0.146249	2.73816	2.130786	0.778182	4.171773
14.5	0.181494	0.130865	2.644288	1.906638	0.72104	4.068127
15	0.201404	0.149117	2.934369	2.172564	0.740385	4.560447
15.5	0.207866	0.151033	3.028517	2.200487	0.726589	4.612271
16	0.219	0.156661	3.190724	2.282483	0.715349	4.819563
16.5	0.206083	0.147007	3.002541	2.14182	0.713336	4.482712
17	0.232987	0.169208	3.394518	2.465277	0.726252	5.026857
17.5	0.200414	0.143336	2.919935	2.088345	0.715202	4.301331
18	0.216907	0.156925	3.160231	2.286323	0.723467	4.715917
18.5	0.239757	0.171569	3.49315	2.499683	0.715596	5.247106
19	0.183178	0.128867	2.668813	1.877526	0.703506	3.96448
19.5	0.199698	0.144882	2.909512	2.110858	0.725502	4.404977
20	0.175781	0.12503	2.561045	1.821628	0.711283	3.886745
20.5	0.188997	0.140489	2.753599	2.046856	0.743338	4.197684
21	0.198776	0.140852	2.89607	2.052152	0.708599	4.404977
21.5	0.195444	0.143185	2.847522	2.08614	0.732616	4.404977
22	0.173341	0.124063	2.525503	1.807548	0.715718	3.783098

22.5	0.205539	0.143393	2.994611	2.089177	0.697645	4.417933
23	0.18768	0.129333	2.73441	1.884322	0.689114	4.094038
23.5	0.186087	0.131569	2.711196	1.916897	0.70703	4.145861
24	0.142182	0.099256	2.07152	1.446113	0.698093	3.161219
24.5	0.216938	0.153071	3.160691	2.230178	0.705598	4.845475
25	0.198124	0.143387	2.88657	2.089088	0.723727	4.430889
25.5	0.152637	0.110045	2.223849	1.60331	0.720962	3.316689
26	0.209724	0.145942	3.055576	2.126313	0.69588	4.456801
26.5	0.201434	0.140033	2.934795	2.04022	0.695183	4.327243
27	0.185648	0.133572	2.704804	1.946076	0.719489	4.055171
27.5	0.200151	0.141887	2.916109	2.067225	0.708898	4.301331
28	0.208311	0.143969	3.035001	2.097556	0.691122	4.495668
28.5	0.147227	0.106597	2.145031	1.553068	0.72403	3.264865
29	0.145086	0.106207	2.113838	1.547388	0.732028	3.187131
29.5	0.19029	0.139117	2.772431	2.026865	0.731079	4.132905
30	0.156992	0.111335	2.287307	1.622099	0.709174	3.355556
30.5	0.216195	0.154302	3.149867	2.248112	0.713717	4.664094
31	0.173259	0.129542	2.524301	1.887363	0.747677	3.705364
31.5	0.17348	0.1213	2.527522	1.76729	0.699218	3.56285
32	0.2687	0.187534	3.914835	2.732281	0.69793	5.63578
32.5	0.203239	0.151668	2.961093	2.209731	0.746255	4.404977
33	0.193599	0.142846	2.820652	2.081197	0.737842	4.119949
33.5	0.186703	0.134586	2.72018	1.960854	0.720855	4.068127
34	0.16148	0.121046	2.352682	1.763584	0.749606	3.65354
34.5	0.122698	0.094394	1.78765	1.375273	0.769319	2.772545
35	0.142444	0.107717	2.075348	1.56939	0.756206	3.200087
Mean	0.207642	0.152364	3.025249	2.219869	1.037802	4.653544
SD	0.046706	0.032932	0.680486	0.479804	2.609522	0.988967

Subject Two-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.100123	0	1.46847	0	7.06092
1	0.136619	0.166141	2.003739	2.436738	1.216096	4.819563
1.5	0.274365	0.190429	4.024019	2.792958	0.694072	5.156415
2	0.297882	0.180498	4.368934	2.6473	0.605937	4.793652
2.5	0.333533	0.194134	4.891811	2.847292	0.582053	5.182326
3	0.338863	0.196792	4.969986	2.886278	0.580742	5.363708
3.5	0.27604	0.166503	4.048591	2.442039	0.603182	4.586359
4	0.331529	0.210156	4.862433	3.082283	0.633897	5.804205
4.5	0.249589	0.165277	3.660633	2.424062	0.662198	4.534536

5	0.276203	0.180569	4.05098	2.648352	0.653756	5.130503
5.5	0.238472	0.159665	3.497589	2.341754	0.669534	4.638182
6	0.258815	0.177522	3.795958	2.603649	0.6859	5.07868
6.5	0.259402	0.178256	3.804556	2.61442	0.687181	5.07868
7	0.266612	0.18351	3.910311	2.691475	0.688302	5.221194
7.5	0.277929	0.197684	4.076287	2.899366	0.711276	5.571001
8	0.247688	0.175577	3.632758	2.575133	0.708864	4.975034
8.5	0.271458	0.195721	3.981386	2.870581	0.721	5.583957
9	0.232357	0.17056	3.4079	2.501546	0.734043	4.806608
9.5	0.241896	0.179587	3.547814	2.63394	0.742412	5.026857
10	0.233419	0.172154	3.423475	2.524928	0.737534	4.871387
10.5	0.233107	0.167641	3.418903	2.45873	0.719158	4.897298
11	0.188307	0.141161	2.761835	2.070365	0.749634	4.016303
11.5	0.23447	0.17347	3.438893	2.544227	0.739839	4.949122
12	0.240939	0.171912	3.53377	2.521373	0.713508	5.000945
12.5	0.2078	0.147589	3.047739	2.164646	0.710247	4.27542
13	0.23671	0.165608	3.471753	2.428913	0.699621	4.858431
13.5	0.242734	0.170527	3.560096	2.501065	0.702528	5.052769
14	0.220938	0.157884	3.240417	2.315628	0.714608	4.599315
14.5	0.24995	0.177148	3.665926	2.598167	0.708734	5.182326
15	0.224343	0.161681	3.290359	2.371323	0.720688	4.664094
15.5	0.222491	0.154351	3.263206	2.263819	0.693741	4.560447
16	0.250194	0.181496	3.669517	2.661947	0.725421	5.221194
16.5	0.226512	0.163901	3.322176	2.403878	0.723585	4.625226
17	0.242668	0.171149	3.559129	2.510182	0.70528	5.013901
17.5	0.247989	0.182219	3.637175	2.672552	0.734788	5.285973
18	0.236895	0.175257	3.474455	2.57044	0.739811	5.013901
18.5	0.227115	0.165274	3.33102	2.424019	0.727711	4.767741
19	0.202064	0.149484	2.96361	2.192427	0.739783	4.288375
19.5	0.189674	0.138004	2.78188	2.024065	0.727589	4.003347
20	0.244082	0.178794	3.579866	2.622314	0.732517	5.143459
20.5	0.195855	0.144662	2.872541	2.121708	0.738617	4.132905
21	0.223918	0.162775	3.284132	2.387363	0.726939	4.612271
21.5	0.241933	0.174186	3.548354	2.554723	0.719974	4.949122
22	0.244557	0.172939	3.586836	2.536446	0.707154	4.975034
22.5	0.25865	0.184649	3.79353	2.708184	0.713895	5.311885
23	0.210516	0.152699	3.087569	2.239583	0.725355	4.404977
23.5	0.233041	0.170729	3.417931	2.50402	0.732613	4.884343
24	0.238413	0.174911	3.496727	2.565362	0.733646	5.052769
24.5	0.204831	0.152791	3.00419	2.240932	0.745936	4.353155
25	0.241367	0.180642	3.540045	2.649411	0.748412	5.104591
25.5	0.180958	0.129965	2.654053	1.906159	0.718207	3.770143
26	0.243485	0.17899	3.57111	2.625191	0.735119	5.07868

26.5	0.214631	0.156474	3.147915	2.29495	0.729038	4.482712
27	0.267756	0.193409	3.927089	2.83667	0.722334	5.48031
27.5	0.207833	0.151611	3.04822	2.223626	0.729483	4.249508
28	0.235537	0.169858	3.454537	2.491253	0.721154	4.819563
28.5	0.243485	0.17899	3.57111	2.625191	0.735119	5.07868
29	0.270123	0.190968	3.961809	2.800866	0.706966	5.674648
29.5	0.232455	0.17512	3.409339	2.568427	0.75335	4.962078
30	0.206768	0.151046	3.032594	2.215339	0.730509	4.262464
30.5	0.22102	0.154571	3.241631	2.267044	0.699353	4.560447
31	0.20225	0.145257	2.966334	2.130441	0.718207	4.379066
31.5	0.180177	0.134394	2.642603	1.971117	0.7459	3.860833
32	0.239873	0.173179	3.518138	2.539963	0.721962	4.975034
32.5	0.234063	0.166661	3.432925	2.444367	0.712036	4.741829
33	0.268652	0.184137	3.940233	2.700674	0.68541	5.311885
33.5	0.270979	0.184649	3.974352	2.708184	0.681415	5.311885
34	0.246334	0.17732	3.612902	2.600691	0.719834	4.871387
34.5	0.248336	0.175884	3.642254	2.579633	0.708252	4.92321
35	0.223926	0.162045	3.284242	2.376658	0.723655	4.560447
Mean	0.236334	0.169156	3.46623	2.480955	0.706237	4.883417
SD	0.044263	0.017943	0.649198	0.263168	0.11113	0.498944

Subject Two-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.091032	0.228165	1.332471	3.339743	2.506428	9.186972
1	0.310655	0.275176	4.547178	4.027859	0.885793	7.367769
1.5	0.334687	0.249102	4.898948	3.646206	0.744284	6.912969
2	0.331902	0.251458	4.858177	3.680693	0.757628	6.912969
2.5	0.29967	0.22412	4.386384	3.280529	0.747889	6.211277
3	0.314117	0.245128	4.597856	3.588038	0.780372	6.757038
3.5	0.290578	0.229126	4.2533	3.35381	0.78852	6.367208
4	0.297649	0.235052	4.356801	3.440545	0.789695	6.770031
4.5	0.266046	0.219591	3.894219	3.214245	0.825389	6.263254
5	0.25142	0.212892	3.680137	3.116179	0.846756	6.055345
5.5	0.250206	0.209042	3.662363	3.059836	0.835481	6.029356
6	0.242504	0.203473	3.549623	2.978307	0.839049	5.795459
6.5	0.218784	0.184567	3.202422	2.70158	0.843605	5.249699
7	0.277416	0.232715	4.060645	3.406343	0.838868	6.731049
7.5	0.210951	0.18352	3.087773	2.686253	0.869965	5.106761
8	0.249621	0.208612	3.653808	3.053531	0.835712	5.925402
8.5	0.233849	0.200912	3.422943	2.940826	0.859151	5.613539

9	0.257109	0.216135	3.763412	3.163649	0.840633	6.055345
9.5	0.235629	0.192895	3.448987	2.823481	0.818641	5.691504
10	0.232133	0.197356	3.397829	2.888783	0.850185	5.899414
10.5	0.241117	0.209477	3.529319	3.0662	0.868779	5.925402
11	0.250561	0.20288	3.667555	2.969635	0.809704	6.003368
11.5	0.222249	0.183881	3.253146	2.691531	0.827363	5.49659
12	0.235117	0.197495	3.4415	2.89081	0.839985	5.886419
12.5	0.246479	0.203781	3.607806	2.982816	0.826767	6.172294
13	0.219776	0.185783	3.216942	2.719382	0.845331	5.561562
13.5	0.255827	0.213807	3.744641	3.129577	0.835748	6.419186
14	0.244678	0.208024	3.581446	3.044933	0.850196	6.120317
14.5	0.209755	0.175972	3.070273	2.57577	0.838938	5.184727
15	0.227979	0.182571	3.337018	2.672358	0.800822	5.58755
15.5	0.223202	0.196155	3.267088	2.8712	0.878826	5.548567
16	0.233495	0.186222	3.417758	2.725798	0.79754	5.665516
16.5	0.23858	0.196487	3.492194	2.876062	0.823569	5.951391
17	0.185085	0.149899	2.709159	2.194124	0.809891	4.573994
17.5	0.242581	0.201419	3.55075	2.948243	0.830316	6.003368
18	0.205761	0.168073	3.011811	2.460152	0.816835	4.937835
18.5	0.222854	0.178229	3.261996	2.608812	0.799759	5.327664
19	0.221338	0.177104	3.239807	2.592339	0.800152	5.340658
19.5	0.258593	0.207618	3.785129	3.038985	0.802875	6.224271
20	0.187834	0.156121	2.749405	2.285208	0.831165	4.522017
20.5	0.2378	0.192063	3.480775	2.811299	0.807665	5.626533
21	0.235087	0.188284	3.441059	2.755982	0.800911	5.58755
21.5	0.181319	0.150925	2.654042	2.209148	0.832371	4.353091
22	0.219592	0.175621	3.21426	2.570635	0.799759	5.249699
22.5	0.242954	0.197931	3.556214	2.897192	0.814684	5.899414
23	0.226958	0.181453	3.32207	2.656	0.799502	5.392636
23.5	0.252065	0.208476	3.689577	3.051542	0.827071	6.081334
24	0.231433	0.190839	3.387583	2.793379	0.824594	5.49659
24.5	0.216302	0.178837	3.166093	2.617705	0.826793	5.093767
25	0.26674	0.216187	3.904376	3.164408	0.810477	6.315231
25.5	0.222947	0.182748	3.263358	2.674954	0.819694	5.353652
26	0.212953	0.172593	3.117074	2.526317	0.810477	5.04179
26.5	0.217895	0.175877	3.189411	2.574376	0.807163	5.249699
27	0.208971	0.16588	3.058792	2.428051	0.793794	5.145743
27.5	0.222826	0.190253	3.261589	2.784803	0.853818	5.613539
28	0.207146	0.169475	3.032082	2.480675	0.818142	5.080773
28.5	0.217218	0.172185	3.179512	2.520345	0.792683	5.184727
29	0.205596	0.15719	3.009382	2.300844	0.764557	4.846875
29.5	0.21387	0.171262	3.130493	2.506835	0.800779	5.067778
30	0.241433	0.183568	3.533945	2.686949	0.760326	5.535573

30.5	0.240173	0.188271	3.515507	2.755801	0.783899	5.652522
31	0.229723	0.181081	3.362545	2.650558	0.78826	5.444613
31.5	0.231234	0.189497	3.384663	2.77374	0.819502	5.535573
32	0.259291	0.213446	3.795337	3.12429	0.823192	6.029356
32.5	0.234426	0.183269	3.431392	2.682584	0.781777	5.353652
33	0.186513	0.150843	2.73006	2.207946	0.808754	4.509023
33.5	0.22746	0.184475	3.329425	2.700233	0.811021	5.58755
34	0.159429	0.135785	2.333629	1.987544	0.851697	3.989251
34.5	0.202557	0.168022	2.964908	2.459406	0.829505	4.859869
35	0.185161	0.151635	2.710273	2.219542	0.818937	4.392075
Mean	0.23437	0.193543	3.430564	2.832964	0.84172	5.684636
SD	0.037725	0.026236	0.55219	0.384024	0.203915	0.777432

Subject Two-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.078143	0.124139	1.146103	1.8207	1.588601	7.624413
1	0.171664	0.207585	2.517742	3.044579	1.20925	5.472575
1.5	0.369558	0.288792	5.420188	4.235616	0.781452	7.225924
2	0.333648	0.232176	4.893503	3.405248	0.695871	5.924195
2.5	0.352178	0.241614	5.165278	3.54367	0.686056	6.402381
3	0.335404	0.245677	4.919264	3.603262	0.73248	6.535211
3.5	0.265593	0.198431	3.895368	2.910319	0.747123	5.326463
4	0.238276	0.188509	3.494722	2.764794	0.791134	5.020955
4.5	0.233233	0.184131	3.420744	2.700592	0.789475	5.020955
5	0.284897	0.219486	4.178488	3.219133	0.770406	6.057025
5.5	0.2976	0.22998	4.364798	3.373039	0.772782	6.296118
6	0.192711	0.144881	2.826423	2.124921	0.751806	4.091148
6.5	0.259759	0.213611	3.809795	3.132964	0.822344	5.711668
7	0.171285	0.132939	2.512178	1.949773	0.776129	3.759074
7.5	0.201474	0.164073	2.954956	2.406409	0.814364	4.409939
8	0.246741	0.192593	3.618869	2.824704	0.780549	5.286614
8.5	0.263264	0.201754	3.861212	2.959053	0.766354	5.472575
9	0.227044	0.166637	3.329983	2.444008	0.73394	4.635749
9.5	0.22738	0.169818	3.334913	2.490662	0.746845	4.834994
10	0.239208	0.184747	3.508378	2.709622	0.772329	5.260048
10.5	0.230174	0.172755	3.375889	2.533746	0.750542	4.994389
11	0.220705	0.175132	3.237009	2.568596	0.793509	4.781862
11.5	0.297934	0.229901	4.369696	3.371884	0.771652	6.335967
12	0.237711	0.186787	3.486421	2.739537	0.785773	5.127219
12.5	0.243016	0.185168	3.564232	2.715796	0.761958	5.286614

13	0.202874	0.157527	2.975487	2.310402	0.776479	4.516202
13.5	0.251154	0.190439	3.683595	2.793105	0.758255	5.552273
14	0.228649	0.182068	3.353521	2.670335	0.796278	5.127219
14.5	0.209156	0.158323	3.067616	2.322077	0.756964	4.622466
15	0.248631	0.193806	3.646594	2.842481	0.779489	5.618688
15.5	0.210688	0.166011	3.090091	2.43483	0.787948	4.662315
16	0.231802	0.175432	3.39976	2.573006	0.75682	4.981106
16.5	0.236482	0.180445	3.468402	2.64653	0.76304	5.060803
17	0.214777	0.163331	3.150064	2.395518	0.760466	4.556052
17.5	0.206764	0.154168	3.03254	2.261132	0.745623	4.383373
18	0.279024	0.20526	4.09235	3.010476	0.735635	5.950761
18.5	0.231183	0.169482	3.390679	2.48573	0.733107	4.941257
19	0.258482	0.199163	3.791067	2.921052	0.770509	5.525707
19.5	0.194601	0.145822	2.854147	2.138719	0.749337	4.117714
20	0.248341	0.183936	3.642341	2.697734	0.740659	5.273331
20.5	0.233042	0.17121	3.417947	2.511087	0.734677	4.888125
21	0.228948	0.166561	3.357901	2.4429	0.727508	4.768579
21.5	0.261261	0.189682	3.831832	2.782003	0.726024	5.499141
22	0.256006	0.185812	3.75475	2.725248	0.725813	5.432726
22.5	0.218763	0.16864	3.208531	2.473387	0.770878	4.768579
23	0.243773	0.182964	3.575342	2.683466	0.750548	5.260048
23.5	0.260116	0.196555	3.815038	2.8828	0.755641	5.698385
24	0.211519	0.154504	3.102281	2.266058	0.730449	4.556052
24.5	0.20747	0.159194	3.042891	2.33485	0.767313	4.5959
25	0.249133	0.18991	3.653949	2.785345	0.762283	5.592122
25.5	0.23855	0.181786	3.498738	2.666195	0.762045	5.233482
26	0.19888	0.150261	2.916906	2.203821	0.755534	4.237261
26.5	0.290553	0.216639	4.261451	3.177365	0.745606	6.176571
27	0.200822	0.161237	2.945384	2.364805	0.802885	4.396657
27.5	0.230161	0.179023	3.375692	2.625676	0.777819	4.888125
28	0.228663	0.178319	3.35372	2.615347	0.779834	4.994389
28.5	0.206854	0.154995	3.033862	2.273265	0.749297	4.449788
29	0.217571	0.162188	3.191036	2.378762	0.745451	4.742013
29.5	0.252659	0.184525	3.705668	2.706362	0.73033	5.472575
30	0.24363	0.181026	3.573233	2.655042	0.743036	5.233482
30.5	0.20484	0.151685	3.004317	2.224713	0.740505	4.409939
31	0.232943	0.176593	3.4165	2.590024	0.758093	5.020955
31.5	0.24256	0.17994	3.557539	2.639127	0.741841	5.18035
32	0.178095	0.1301	2.61206	1.908131	0.730508	3.82549
32.5	0.181386	0.137065	2.660328	2.010283	0.755652	3.984885
33	0.322067	0.238493	4.723655	3.497892	0.740505	6.9337
33.5	0.282605	0.212463	4.144867	3.116129	0.751804	5.871063
34	0.271231	0.202925	3.97805	2.976227	0.748162	5.645254

34.5	0.230454	0.174986	3.379995	2.566463	0.75931	4.941257
35	0.243081	0.18588	3.565183	2.726241	0.764685	5.366312
Mean	0.239126	0.183024	3.507186	2.684354	0.776248	5.197808
SD	0.04452	0.02931	0.652962	0.429887	0.114855	0.757722

Subject Three-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.430616	0.323554	4.736776	3.559094	0.751375	7.845208
1	0.497203	0.396727	5.469233	4.363999	0.797918	10.20263
1.5	0.421666	0.342114	4.638328	3.763253	0.811338	8.373375
2	0.325161	0.283023	3.576773	3.113256	0.870409	6.94346
2.5	0.509501	0.425667	5.604516	4.682337	0.835458	11.00133
3	0.36641	0.363518	4.030509	3.998699	0.992108	8.682545
3.5	0.265295	0.234298	2.918245	2.577275	0.883159	5.681013
4	0.258928	0.226226	2.848212	2.488484	0.8737	5.861362
4.5	0.254777	0.237602	2.802542	2.613627	0.932592	5.977302
5	0.307866	0.266497	3.38653	2.931472	0.865627	6.879049
5.5	0.252534	0.216461	2.777879	2.381069	0.857154	5.53931
6	0.254205	0.209466	2.79625	2.304126	0.824005	5.474899
6.5	0.29987	0.253837	3.29857	2.792204	0.846489	6.544114
7	0.318483	0.254204	3.503313	2.796244	0.798171	6.569879
7.5	0.304648	0.231104	3.351128	2.542143	0.758593	6.196297
8	0.327937	0.262722	3.607311	2.889941	0.801135	7.007871
8.5	0.288233	0.229399	3.170568	2.523386	0.795878	6.119005
9	0.361362	0.298298	3.97498	3.281281	0.825484	7.806561
9.5	0.298323	0.247454	3.281552	2.72199	0.829482	6.363765
10	0.239997	0.203559	2.639967	2.239148	0.848173	5.127082
10.5	0.295495	0.253254	3.250448	2.785797	0.85705	6.325118
11	0.241109	0.208027	2.652196	2.288297	0.862793	5.139964
11.5	0.368031	0.305417	4.04834	3.359589	0.829868	7.767915
12	0.261423	0.219168	2.875653	2.410846	0.838365	5.513546
12.5	0.276988	0.233322	3.046864	2.566546	0.842357	6.106122
13	0.277948	0.237315	3.05743	2.610464	0.85381	5.977302
13.5	0.289563	0.255943	3.185195	2.815375	0.883894	6.234944
14	0.267814	0.238833	2.945958	2.627163	0.891786	5.887126
14.5	0.314788	0.271684	3.462669	2.988526	0.86307	6.801757
15	0.30117	0.251434	3.312874	2.765772	0.834856	6.363765
15.5	0.283429	0.246644	3.117724	2.713084	0.870213	6.234944
16	0.296039	0.253868	3.256427	2.792547	0.857549	6.441057
16.5	0.273501	0.257374	3.008514	2.831111	0.941033	6.247826

17	0.281124	0.255034	3.092362	2.805373	0.907194	6.286472
17.5	0.252823	0.225263	2.781058	2.477898	0.890991	5.526427
18	0.269598	0.244217	2.96558	2.686384	0.905854	5.977302
18.5	0.468423	0.393258	5.152657	4.325842	0.839536	10.15111
19	0.331929	0.326952	3.651217	3.596467	0.985005	7.548919
19.5	0.32118	0.31246	3.532978	3.437064	0.972852	7.471627
20	0.23047	0.228338	2.535175	2.511714	0.990746	5.655248
20.5	0.214036	0.214551	2.354398	2.360056	1.002403	5.410488
21	0.268705	0.245861	2.955756	2.704467	0.914983	6.466822
21.5	0.27456	0.244011	3.020164	2.684118	0.888732	6.183415
22	0.310361	0.275534	3.413975	3.030874	0.887784	7.007871
22.5	0.282333	0.245146	3.105667	2.696609	0.868286	6.312237
23	0.235846	0.205626	2.594302	2.261887	0.871867	5.204375
23.5	0.251757	0.216592	2.769331	2.382515	0.860321	5.307431
24	0.262818	0.21788	2.890995	2.396676	0.829014	5.487781
24.5	0.283763	0.236517	3.121398	2.601687	0.833501	5.900009
25	0.303622	0.248868	3.339843	2.737549	0.819664	6.260708
25.5	0.303273	0.244544	3.336005	2.689987	0.80635	6.234944
26	0.257035	0.220088	2.827387	2.420972	0.856258	5.590838
26.5	0.328898	0.283883	3.61788	3.122714	0.863134	6.956342
27	0.296799	0.254143	3.264791	2.795577	0.856281	6.234944
27.5	0.219788	0.195802	2.417673	2.153827	0.890868	4.843675
28	0.26048	0.233084	2.865283	2.563927	0.894825	5.745423
28.5	0.270899	0.226275	2.979884	2.489025	0.835276	5.590838
29	0.241186	0.208785	2.653046	2.296632	0.865658	4.99826
29.5	0.28783	0.238833	3.166128	2.627163	0.829772	5.887126
30	0.280626	0.232066	3.086888	2.552721	0.826956	5.706777
30.5	0.276314	0.234516	3.039457	2.579672	0.848728	5.719659
31	0.319305	0.271702	3.51236	2.98872	0.850915	6.595643
31.5	0.261893	0.225003	2.880819	2.475034	0.859142	5.462017
32	0.270503	0.23314	2.975528	2.564538	0.861877	5.719659
32.5	0.265249	0.225313	2.917737	2.478439	0.849439	5.66813
33	0.274991	0.225942	3.024904	2.485367	0.821635	5.732541
33.5	0.275462	0.240207	3.030084	2.642279	0.872015	5.900009
34	0.270509	0.218205	2.975598	2.40026	0.806648	5.590838
34.5	0.27093	0.221857	2.980232	2.440431	0.818873	5.719659
35	0.379818	0.29981	4.178003	3.29791	0.789351	7.986911
Mean	0.296935	0.25439	3.266286	2.798293	0.859966	6.389713
SD	0.058362	0.046362	0.641983	0.509987	0.050655	1.180821

Subject Three-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.436191	0.45604	4.798105	5.016444	1.045505	10.84563
1	0.56001	0.479272	6.160109	5.271994	0.855828	11.26819
1.5	0.385946	0.343404	4.245404	3.777444	0.889773	8.656016
2	0.387863	0.363027	4.266489	3.993301	0.935969	9.040159
2.5	0.42994	0.398946	4.729344	4.388404	0.92791	10.26942
3	0.320936	0.304284	3.530292	3.34712	0.948114	7.862122
3.5	0.451533	0.417051	4.966863	4.587565	0.923634	10.43588
4	0.310968	0.290327	3.420652	3.1936	0.933623	7.734074
4.5	0.291886	0.312002	3.210744	3.432018	1.068917	8.041389
5	0.422187	0.402876	4.644056	4.431638	0.95426	9.936493
5.5	0.300125	0.273987	3.301375	3.013854	0.912909	6.940179
6	0.306702	0.298083	3.373728	3.278912	0.971896	7.644441
6.5	0.276186	0.267622	3.038044	2.943838	0.968991	6.83774
7	0.306666	0.290101	3.373327	3.191112	0.945984	7.375541
7.5	0.251951	0.231528	2.771459	2.546804	0.91894	5.800556
8	0.308583	0.262477	3.394411	2.887251	0.85059	6.748107
8.5	0.34001	0.294774	3.740106	3.242511	0.866957	7.503589
9	0.365635	0.315602	4.021984	3.471619	0.863161	7.887731
9.5	0.285742	0.248394	3.143161	2.732333	0.869295	6.223113
10	0.326661	0.29021	3.593266	3.192305	0.888413	7.183469
10.5	0.273981	0.233514	3.013787	2.568658	0.852302	5.864579
11	0.275832	0.23728	3.034156	2.610084	0.860234	6.146284
11.5	0.266958	0.234534	2.93654	2.579875	0.878542	5.890189
12	0.274531	0.226417	3.019845	2.490583	0.824739	5.672508
12.5	0.333797	0.273603	3.671764	3.00963	0.819669	6.748107
13	0.295781	0.236927	3.253589	2.606196	0.801022	5.864579
13.5	0.284702	0.236267	3.131718	2.598938	0.829876	5.81336
14	0.340599	0.285152	3.746587	3.13667	0.837207	6.773718
14.5	0.39086	0.310969	4.299458	3.420658	0.795602	7.606027
15	0.278578	0.231692	3.064363	2.548615	0.831695	5.646898
15.5	0.322468	0.278137	3.547145	3.059511	0.862528	6.684083
16	0.303668	0.246053	3.340345	2.706581	0.81027	6.018237
16.5	0.35556	0.288237	3.911158	3.17061	0.810658	7.40115
17	0.277291	0.236927	3.050201	2.606198	0.854435	6.223113
17.5	0.240873	0.224978	2.649601	2.474759	0.934012	5.595679
18	0.329855	0.274614	3.628402	3.020759	0.832532	6.863351
18.5	0.304353	0.264592	3.347879	2.910509	0.869359	6.35116
19	0.364403	0.299318	4.008436	3.2925	0.821393	7.42676
19.5	0.27086	0.222773	2.979459	2.450507	0.822467	5.608484
20						
20.5	0.301028	0.245469	3.311306	2.700161	0.815437	6.018237
21	0.325538	0.267	3.580913	2.937005	0.820183	6.632865

21.5	0.346496	0.298063	3.811461	3.278691	0.860219	7.273103
22	0.252712	0.211587	2.779828	2.327457	0.837266	5.249951
22.5	0.301475	0.25409	3.316229	2.794992	0.842823	6.492013
23	0.312636	0.262994	3.438992	2.892929	0.841214	6.517622
23.5	0.376383	0.319885	4.140212	3.518735	0.849893	7.759684
24	0.29087	0.23957	3.199572	2.635268	0.823631	5.915798
24.5	0.414391	0.353458	4.558301	3.888038	0.852958	8.707235
25	0.287955	0.238508	3.167502	2.623589	0.828283	6.248723
25.5	0.23872	0.235546	2.62592	2.591006	0.986704	5.774946
26	0.252191	0.235105	2.774104	2.586159	0.93225	5.890189
26.5	0.287287	0.24983	3.160155	2.748128	0.869618	6.274332
27	0.308148	0.271395	3.389628	2.98534	0.880728	6.709693
27.5	0.329278	0.284868	3.622055	3.133551	0.865131	7.068226
28	0.334697	0.293309	3.681669	3.226394	0.87634	7.106641
28.5	0.278931	0.234294	3.068237	2.577233	0.839972	5.81336
29	0.326993	0.285211	3.596919	3.137321	0.872225	7.068226
29.5	0.250912	0.195977	2.760028	2.155743	0.781058	5.147512
30	0.277878	0.240261	3.056661	2.642868	0.864626	6.146284
30.5	0.315381	0.280741	3.469186	3.088148	0.890165	7.093836
31	0.279354	0.254127	3.072898	2.795401	0.909695	6.223113
31.5	0.425374	0.376467	4.679113	4.141135	0.885026	9.296254
32	0.265844	0.245793	2.924289	2.70372	0.924573	5.941408
32.5	0.303621	0.279681	3.339832	3.076496	0.921153	6.91457
33	0.215996	0.194456	2.375952	2.139016	0.900278	4.801785
33.5	0.237172	0.20775	2.608888	2.285251	0.875948	5.288365
34	0.213587	0.176999	2.349459	1.946995	0.828699	4.660932
34.5	0.234689	0.191622	2.581575	2.107843	0.816495	4.865808
35	0.315663	0.249221	3.47229	2.741435	0.789518	6.274332
Mean	0.315244	0.276163	3.467689	3.037796	0.874947	6.892857
SD	0.061366	0.059277	0.675029	0.652052	0.057419	1.419242

Subject Three-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.550356	0.357186	6.11507	3.968732	0.649008	9.134995
1	0.576092	0.38766	6.401018	4.307333	0.672914	10.7073
1.5	0.395832	0.286961	4.398129	3.188457	0.724957	7.393757
2	0.621721	0.413865	6.908013	4.598496	0.665676	11.61691
2.5	0.535858	0.390513	5.953974	4.339036	0.728763	11.00618
3	0.431157	0.37918	4.790634	4.21311	0.879447	10.16155
3.5	0.38224	0.345347	4.247116	3.837194	0.903482	9.290926

4	0.349392	0.339569	3.882129	3.772988	0.971886	9.316915
4.5	0.223551	0.232416	2.4839	2.582399	1.039655	6.471163
5	0.196633	0.200323	2.184809	2.225807	1.018765	5.431619
5.5	0.271849	0.233257	3.02055	2.591749	0.858039	6.34122
6	0.327293	0.250577	3.636588	2.784189	0.765605	6.847998
6.5	0.326485	0.248261	3.627607	2.758456	0.760406	6.653082
7	0.31843	0.243453	3.53811	2.705037	0.764543	6.627094
7.5	0.357806	0.279168	3.975626	3.101862	0.78022	7.54969
8	0.312174	0.235478	3.4686	2.616421	0.754316	6.198282
8.5	0.267187	0.20568	2.968748	2.285333	0.769797	5.483595
9	0.261158	0.211244	2.901759	2.347155	0.808873	5.574556
9.5	0.342487	0.261459	3.805415	2.905096	0.763411	7.107883
10	0.424733	0.319535	4.719254	3.550392	0.752321	8.368331
10.5	0.272263	0.215159	3.025147	2.39066	0.790263	5.613539
11	0.211903	0.171685	2.354479	1.907612	0.810206	4.548006
11.5	0.243104	0.189596	2.701157	2.106621	0.779896	5.236704
12	0.29048	0.224203	3.227551	2.491143	0.771837	6.055345
12.5	0.429231	0.307229	4.769238	3.413651	0.715764	8.407314
13	0.365412	0.285567	4.060137	3.172965	0.781492	7.692627
13.5	0.351335	0.286469	3.903725	3.182987	0.815372	7.588673
14	0.212295	0.177899	2.358831	1.976652	0.837979	4.561
14.5	0.381376	0.306491	4.237508	3.405453	0.803645	7.926524
15	0.274204	0.203993	3.046716	2.266583	0.743943	5.431619
15.5	0.210284	0.169266	2.336488	1.880728	0.804938	4.405068
16	0.372565	0.291197	4.139615	3.235526	0.781601	7.783587
16.5	0.367479	0.273595	4.083096	3.039944	0.744519	7.536696
17	0.25515	0.207781	2.834995	2.308675	0.814349	5.22371
17.5	0.321877	0.255927	3.576411	2.843629	0.795107	6.627094
18	0.246746	0.199224	2.741621	2.213599	0.807405	5.171732
18.5	0.277969	0.212815	3.088539	2.364611	0.765608	5.58755
19	0.277055	0.208234	3.078393	2.313712	0.751597	5.40563
19.5	0.39576	0.303918	4.397336	3.376868	0.767935	7.64065
20	0.347752	0.250524	3.863913	2.783602	0.72041	6.705061
20.5	0.285744	0.235016	3.174933	2.611284	0.822469	6.055345
21	0.24785	0.20335	2.753885	2.25944	0.820455	5.093767
21.5	0.200735	0.166159	2.230394	1.846208	0.82775	4.132188
22	0.307216	0.237372	3.413515	2.63747	0.772655	6.185288
22.5	0.286846	0.210737	3.187173	2.341521	0.73467	5.470602
23	0.393046	0.284028	4.367179	3.15587	0.722634	7.354775
23.5	0.258437	0.199571	2.871517	2.217459	0.772226	5.04179
24	0.320614	0.250089	3.562377	2.778769	0.780032	6.34122
24.5	0.470511	0.346386	5.227903	3.848739	0.736192	9.083018
25	0.290646	0.241167	3.229399	2.679631	0.829762	5.912408

25.5	0.231553	0.201517	2.572812	2.239082	0.870286	4.859869
26	0.245011	0.193073	2.722346	2.14526	0.788019	4.937835
26.5	0.273021	0.214216	3.033565	2.380175	0.784613	5.431619
27	0.290997	0.225522	3.233304	2.505805	0.774998	5.548567
27.5	0.322013	0.232074	3.577919	2.578595	0.720697	5.834442
28	0.285961	0.193201	3.17734	2.146682	0.675622	5.197721
28.5	0.288216	0.208012	3.202405	2.311242	0.721721	5.379642
29	0.274368	0.193002	3.048529	2.144463	0.703442	5.04179
29.5	0.262161	0.190098	2.912905	2.112199	0.725118	4.885858
30	0.32136	0.234439	3.570667	2.604873	0.72952	5.795459
30.5	0.30923	0.223142	3.43589	2.479359	0.721606	5.457607
31	0.359875	0.258362	3.998609	2.870687	0.717921	6.575118
31.5	0.374216	0.284103	4.157957	3.1567	0.759195	7.159861
32	0.246461	0.177639	2.738454	1.973771	0.720761	4.729926
32.5	0.231951	0.182205	2.577231	2.024498	0.785532	4.729926
33	0.321941	0.243641	3.577127	2.707121	0.756786	6.185288
33.5	0.392308	0.274971	4.358975	3.055234	0.700907	7.237826
34	0.380676	0.291641	4.229732	3.240458	0.766114	7.523701
34.5	0.316626	0.246218	3.518064	2.735757	0.777631	6.289243
35	0.253925	0.196494	2.821384	2.183272	0.77383	5.40563
Mean	0.323146	0.248562	3.590506	2.761801	0.777559	6.532979
SD	0.087163	0.058113	0.968482	0.645696	0.069642	1.65104

Subject Three-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.440826	0.398517	4.873456	4.40572	0.904024	9.952285
1	0.43655	0.401912	4.826176	4.443247	0.920656	9.835656
1.5	0.539895	0.499754	5.968687	5.524924	0.925651	12.86799
2	0.293208	0.288649	3.241493	3.191099	0.984454	7.38646
2.5	0.346727	0.351079	3.833163	3.881274	1.012551	8.345405
3	0.360568	0.336132	3.986175	3.716036	0.932231	8.008478
3.5	0.355867	0.341231	3.934205	3.772405	0.958874	8.176942
4	0.317124	0.300362	3.50589	3.32058	0.947143	7.438296
4.5	0.340905	0.329928	3.7688	3.647447	0.967801	8.151025
5	0.324611	0.311843	3.588662	3.44751	0.960667	7.658594
5.5	0.326858	0.306465	3.613507	3.388058	0.937609	7.412378
6	0.306848	0.281949	3.392285	3.117027	0.918858	7.153204
6.5	0.255676	0.247023	2.826568	2.730906	0.966156	6.29793
7	0.384947	0.367698	4.255693	4.065009	0.955193	9.317307
7.5	0.265543	0.217005	2.935651	2.399052	0.817213	5.766623
8	0.292574	0.268012	3.234483	2.962942	0.916048	6.816278

8.5	0.276551	0.241007	3.057343	2.664394	0.871474	6.129467
9	0.235051	0.201052	2.598558	2.22268	0.855351	5.235316
9.5	0.25715	0.232941	2.842859	2.575224	0.905857	6.012838
10	0.417558	0.341581	4.616214	3.776271	0.818045	9.019257
10.5	0.305237	0.243061	3.374475	2.687111	0.796305	6.4016
11	0.287831	0.243733	3.182056	2.694541	0.846793	6.362723
11.5	0.270661	0.226308	2.992231	2.501901	0.836132	5.805499
12	0.302068	0.266849	3.339441	2.950091	0.883409	6.712608
12.5	0.223182	0.193074	2.467343	2.134486	0.865095	4.89839
13	0.278949	0.233364	3.083858	2.5799	0.836582	5.935086
13.5	0.419898	0.32063	4.642093	3.544655	0.76359	8.423158
14	0.377619	0.292761	4.174686	3.23655	0.77528	7.840015
14.5	0.286901	0.270912	3.171765	2.995007	0.944271	6.906989
15	0.216322	0.208596	2.391502	2.306085	0.964283	5.092771
15.5	0.319368	0.279137	3.530699	3.085936	0.87403	6.945865
16	0.287112	0.227895	3.174101	2.519446	0.793751	5.753664
16.5	0.242386	0.193074	2.679644	2.134486	0.796556	4.89839
17	0.287728	0.245347	3.180914	2.712376	0.852704	6.19426
17.5	0.287119	0.230316	3.174185	2.546203	0.80216	5.779582
18	0.28174	0.228459	3.114717	2.525677	0.810885	5.624077
18.5	0.262554	0.214847	2.902605	2.375194	0.818298	5.19644
19	0.269916	0.208637	2.983996	2.306538	0.77297	5.248275
19.5	0.41048	0.31552	4.537971	3.488157	0.76866	8.034396
20	0.281742	0.22489	3.114739	2.486222	0.798212	5.740706
20.5	0.361399	0.293903	3.995363	3.249176	0.813237	7.217997
21	0.276995	0.217677	3.062257	2.406476	0.78585	5.442655
21.5	0.291273	0.238597	3.220106	2.637753	0.819151	6.09059
22	0.242967	0.210686	2.686063	2.329189	0.867138	5.364903
22.5	0.297872	0.243724	3.293054	2.694437	0.818218	6.064673
23	0.315975	0.252615	3.493189	2.792724	0.799477	6.323847
23.5	0.251579	0.202402	2.781279	2.237613	0.804527	5.066854
24	0.288263	0.238983	3.186822	2.642021	0.829046	5.961004
24.5	0.406954	0.317978	4.498984	3.515336	0.781362	8.008478
25	0.244405	0.191149	2.701968	2.113205	0.782099	5.027977
25.5	0.304868	0.272029	3.370397	3.007359	0.892286	6.712608
26	0.212302	0.171081	2.347053	1.891348	0.805839	4.211579
26.5	0.282413	0.224498	3.122149	2.481887	0.794929	5.546325
27	0.34599	0.265819	3.825016	2.938701	0.768284	6.686691
27.5	0.297648	0.223323	3.290576	2.468903	0.750295	5.714788
28	0.283218	0.218345	3.131053	2.413868	0.770944	5.546325
28.5	0.353983	0.28024	3.913378	3.098133	0.791677	7.127287
29	0.262544	0.208627	2.902498	2.306426	0.794635	5.235316
29.5	0.251135	0.203929	2.776368	2.25449	0.812028	5.092771

30	0.265895	0.217068	2.939546	2.399741	0.816365	5.287151
30.5	0.21045	0.168574	2.326585	1.863634	0.801017	4.159744
31	0.292549	0.233879	3.234208	2.585599	0.799454	5.637036
31.5	0.354106	0.265509	3.914738	2.935279	0.749802	6.505269
32	0.279399	0.20297	3.08883	2.243892	0.726453	5.105729
32.5	0.306081	0.233308	3.383812	2.57929	0.762244	5.805499
33	0.308859	0.235881	3.414523	2.607733	0.763718	5.948045
33.5	0.257757	0.214732	2.849573	2.373925	0.833081	5.157564
34	0.260505	0.207491	2.879952	2.29387	0.796496	5.053895
34.5	0.23725	0.186959	2.622864	2.066886	0.788026	4.652174
35	0.224634	0.172061	2.483386	1.902182	0.765963	4.328207
Mean	0.303473	0.256366	3.354978	2.834192	0.842278	6.440846
SD	0.061433	0.060852	0.679154	0.672733	0.07037	1.532372

Subject Four-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.394268	0.321911	5.042958	4.117462	0.816478	8.811587
1	0.462187	0.424314	5.911694	5.427268	0.918056	10.59458
1.5	0.386927	0.35394	4.94907	4.527135	0.914745	8.837428
2	0.383652	0.360758	4.907172	4.614345	0.940327	9.380077
2.5	0.313628	0.294204	4.011517	3.763074	0.938067	7.907173
3	0.325254	0.306659	4.160229	3.922378	0.942827	8.449821
3.5	0.33037	0.316457	4.225657	4.047706	0.957888	8.527344
4	0.287909	0.270518	3.682556	3.460108	0.939594	7.261162
4.5	0.289914	0.274981	3.708201	3.517194	0.948491	7.467885
5	0.232372	0.207528	2.972205	2.654423	0.893082	5.710736
5.5	0.249305	0.216106	3.188789	2.764148	0.866833	6.227545
6	0.265481	0.219068	3.395691	2.802037	0.825174	6.447188
6.5	0.324039	0.246636	4.144685	3.154651	0.761132	7.299922
7	0.301111	0.237132	3.851426	3.033088	0.787524	6.666832
7.5	0.31354	0.242065	4.010401	3.096182	0.772038	6.705593
8	0.30838	0.242906	3.944393	3.106941	0.787685	6.847715
8.5	0.328553	0.255561	4.202423	3.268806	0.777839	7.364524
9	0.38172	0.306874	4.882466	3.925135	0.803925	8.734067
9.5	0.262018	0.214261	3.351388	2.740545	0.817734	5.9433
10	0.343314	0.303249	4.391228	3.878769	0.883299	8.139736
10.5	0.272217	0.226207	3.48184	2.89335	0.830983	6.266305
11	0.324415	0.251875	4.149489	3.221661	0.776399	7.248241
11.5	0.305402	0.248476	3.906307	3.178177	0.813602	7.261162
12	0.304379	0.244398	3.893225	3.126022	0.802939	7.13196

12.5	0.285642	0.240156	3.653556	3.071768	0.840761	6.770194
13	0.246737	0.213179	3.155943	2.726708	0.863992	5.96914
13.5	0.252155	0.217891	3.225234	2.786981	0.864118	5.917459
14	0.30889	0.255746	3.950923	3.271167	0.82795	7.390365
14.5	0.385657	0.321299	4.932821	4.109641	0.833122	9.069992
15	0.34068	0.284363	4.357532	3.637197	0.834692	7.622929
15.5	0.205353	0.209093	2.626605	2.674447	1.018215	5.284369
16	0.19172	0.209519	2.452232	2.679891	1.092838	5.193927
16.5	0.229946	0.217156	2.941164	2.777575	0.94438	6.240465
17	0.283498	0.228991	3.626138	2.92896	0.807735	6.473029
17.5	0.255541	0.193039	3.268545	2.469104	0.755414	5.633215
18	0.31752	0.235764	4.061298	3.015582	0.742517	6.899396
18.5	0.329067	0.244742	4.209	3.130417	0.743744	7.13196
19	0.257832	0.193059	3.297854	2.469354	0.748776	5.594454
19.5	0.298669	0.246907	3.820183	3.158118	0.826693	6.57639
20	0.286594	0.222101	3.665737	2.840833	0.774969	6.382588
20.5	0.291809	0.221318	3.732444	2.830812	0.758434	6.55055
21	0.244674	0.189762	3.129546	2.427188	0.775572	5.697816
21.5	0.264758	0.212189	3.386436	2.714044	0.801445	6.072502
22	0.254371	0.196647	3.253582	2.51525	0.773071	5.581534
22.5	0.284004	0.217113	3.632606	2.777027	0.764472	6.046661
23	0.313467	0.228055	4.009465	2.916978	0.727523	6.692673
23.5	0.280091	0.214463	3.582561	2.74313	0.76569	6.188784
24	0.313578	0.242165	4.010878	3.097453	0.772263	6.744353
24.5	0.336746	0.26387	4.307215	3.375082	0.783588	7.261162
25	0.24794	0.191056	3.171321	2.44374	0.770575	5.271449
25.5	0.320884	0.240547	4.104327	3.076765	0.749639	6.808954
26	0.335122	0.257222	4.286449	3.290055	0.767548	7.261162
26.5	0.23661	0.182944	3.026406	2.339985	0.773189	5.206848
27	0.431536	0.332425	5.519651	4.251952	0.77033	9.741844
27.5	0.268694	0.247701	3.436782	3.168271	0.921871	6.111263
28	0.316304	0.284133	4.045746	3.634254	0.89829	6.976917
28.5	0.2912	0.247725	3.724652	3.168577	0.850704	6.615151
29	0.286681	0.235037	3.666852	3.006289	0.819856	6.56347
29.5	0.234315	0.203158	2.997047	2.59853	0.86703	5.620295
30	0.286654	0.225029	3.6665	2.878273	0.785019	6.511789
30.5	0.273901	0.214612	3.503389	2.745035	0.783537	6.201705
31	0.322899	0.247199	4.130098	3.161853	0.765564	7.390365
31.5	0.261784	0.207037	3.348395	2.648144	0.79087	6.007901
32	0.28506	0.217017	3.646116	2.775802	0.761304	6.460109
32.5	0.265723	0.204137	3.398782	2.611054	0.768232	6.085422
33	0.271542	0.21048	3.473208	2.692192	0.775131	6.460109
33.5	0.257167	0.201363	3.289345	2.575571	0.783004	6.072502

34	0.253749	0.197431	3.245629	2.525276	0.778055	6.059582
34.5	0.284637	0.238652	3.640707	3.052526	0.838443	6.602231
35	0.206674	0.157069	2.643507	2.009019	0.759982	4.470395
Mean	0.295549	0.243523	3.780277	3.114835	0.824812	6.810246
SD	0.05042	0.046981	0.644906	0.600925	0.073616	1.149326

Subject Four-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.406147	0.40624	5.194909	5.196094	1.000228	11.04516
1	0.412628	0.364167	5.277798	4.657952	0.882556	9.303921
1.5	0.315139	0.292917	4.030851	3.746609	0.929483	7.770593
2	0.298728	0.277938	3.820945	3.555022	0.930404	7.770593
2.5	0.258156	0.23255	3.301997	2.974474	0.900811	6.484157
3	0.33714	0.278589	4.312261	3.563351	0.82633	8.004491
3.5	0.24918	0.205493	3.187184	2.628402	0.824679	5.691504
4	0.317126	0.251719	4.056258	3.21966	0.793751	7.172855
4.5	0.324152	0.248362	4.146125	3.176719	0.76619	7.328787
5	0.33608	0.250481	4.298701	3.203823	0.7453	7.328787
5.5	0.31297	0.244338	4.0031	3.125252	0.780708	6.822009
6	0.340847	0.252717	4.35967	3.232425	0.741438	7.510706
6.5	0.315795	0.245575	4.039234	3.14107	0.77764	7.055906
7	0.332587	0.251256	4.254022	3.213741	0.755459	7.289804
7.5	0.319567	0.253907	4.08748	3.247642	0.794534	7.146867
8	0.2342	0.181742	2.995584	2.32461	0.776012	5.171732
8.5	0.357737	0.279398	4.575704	3.573692	0.781015	8.18641
9	0.224335	0.183026	2.869396	2.341027	0.815861	5.158738
9.5	0.32925	0.262465	4.211343	3.357106	0.797158	7.367769
10	0.26557	0.220212	3.396827	2.816667	0.829205	6.107322
10.5	0.381689	0.290861	4.882063	3.72031	0.762036	8.498275
11	0.247086	0.205528	3.160401	2.628845	0.831808	5.76947
11.5	0.238183	0.205135	3.046531	2.623822	0.861249	5.821447
12	0.231453	0.191153	2.960445	2.444983	0.825883	5.561562
12.5	0.291233	0.225039	3.725068	2.878405	0.772712	6.575118
13	0.284977	0.217062	3.64506	2.776374	0.761681	6.185288
13.5	0.326598	0.23316	4.177421	2.982282	0.713905	6.822009
14	0.304076	0.22586	3.889351	2.888904	0.742773	6.627094
14.5	0.273374	0.20726	3.496651	2.650994	0.758152	6.081334
15	0.29757	0.230824	3.80613	2.952402	0.775697	6.497151
15.5	0.291094	0.21588	3.723294	2.761259	0.741617	6.237265
16	0.255622	0.193749	3.26958	2.478184	0.757952	5.574556

16.5	0.265316	0.217744	3.393574	2.785104	0.820699	5.951391
17	0.313891	0.22649	4.014882	2.896965	0.721557	6.770031
17.5	0.296258	0.221936	3.789352	2.83872	0.749131	6.653082
18	0.305205	0.233687	3.903782	2.989018	0.765673	6.705061
18.5	0.270488	0.195374	3.459732	2.498972	0.722302	5.951391
19	0.285508	0.213137	3.651853	2.726174	0.746518	6.445174
19.5	0.273527	0.20665	3.498603	2.643202	0.755502	6.029356
20	0.322689	0.225877	4.127416	2.889124	0.699984	7.003929
20.5	0.269218	0.202409	3.443488	2.588954	0.751841	6.211277
21	0.287915	0.215311	3.68264	2.753983	0.747828	6.445174
21.5	0.286112	0.209494	3.659567	2.679571	0.73221	6.419186
22	0.278864	0.211927	3.566861	2.710689	0.759965	6.484157
22.5	0.325815	0.241497	4.1674	3.088917	0.74121	7.432742
23	0.249142	0.201306	3.186695	2.574843	0.807998	5.873425
23.5	0.324253	0.247228	4.147427	3.16222	0.762453	7.432742
24	0.212907	0.182383	2.72323	2.332804	0.856631	5.119755
24.5	0.246687	0.209496	3.155301	2.679603	0.849238	5.600544
25	0.328923	0.25981	4.20716	3.32315	0.78988	7.224832
25.5	0.245048	0.194376	3.134332	2.48621	0.793218	5.639528
26	0.263028	0.205202	3.364316	2.624679	0.780152	6.107322
26.5	0.264042	0.208954	3.377288	2.672663	0.791364	6.393197
27	0.245121	0.190212	3.135273	2.432941	0.77599	5.951391
27.5	0.348663	0.26027	4.459641	3.329035	0.74648	8.082456
28	0.256958	0.211148	3.286668	2.700732	0.821723	5.951391
28.5	0.41684	0.315566	5.331674	4.036305	0.757043	9.459852
29	0.266888	0.281916	3.413678	3.605898	1.056309	6.601106
29.5	0.270093	0.2576	3.454682	3.294879	0.953743	6.185288
30	0.293458	0.238183	3.753528	3.046527	0.811643	6.588112
30.5	0.266992	0.21618	3.415009	2.765088	0.809687	6.471163
31	0.23733	0.195087	3.035618	2.495304	0.822008	5.951391
31.5	0.224971	0.18326	2.877538	2.344023	0.814593	5.509584
32	0.298982	0.231021	3.824188	2.954922	0.772693	7.120878
32.5	0.375213	0.341881	4.799231	4.372892	0.911165	9.186972
33	0.298994	0.254188	3.824345	3.251239	0.850143	6.510146
33.5	0.343702	0.287535	4.396185	3.67777	0.836582	7.848559
34	0.272621	0.23589	3.48701	3.017199	0.865268	6.731049
34.5	0.277833	0.244616	3.553677	3.128808	0.880442	6.757038
35	0.263643	0.223488	3.372175	2.858568	0.847693	6.484157
Mean	0.294049	0.236042	3.761091	3.01914	0.803326	6.76075
SD	0.04509	0.041862	0.576736	0.535446	0.067117	1.070814

Subject Four-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.455298	0.472318	5.789913	6.006361	1.037384	12.63192
1	0.449674	0.355348	5.718393	4.518871	0.790234	9.172718
1.5	0.381291	0.336194	4.848786	4.275298	0.881725	8.991337
2	0.327366	0.296528	4.163039	3.770877	0.905799	7.760535
2.5	0.291816	0.257573	3.71096	3.275492	0.882654	6.724069
3	0.342371	0.299737	4.353852	3.811679	0.875473	8.110341
3.5	0.367436	0.3077	4.672598	3.912948	0.837425	8.239899
4	0.309908	0.278072	3.941029	3.536181	0.897273	7.332992
4.5	0.259918	0.246983	3.305311	3.140826	0.950236	6.529731
5	0.250214	0.245627	3.181906	3.123579	0.981669	6.348351
5.5	0.281776	0.257614	3.583276	3.276011	0.91425	6.633378
6	0.298159	0.252063	3.791618	3.205427	0.845398	6.698157
6.5	0.306229	0.262731	3.894245	3.341091	0.857956	7.099788
7	0.271981	0.237618	3.458722	3.021738	0.873657	6.218792
7.5	0.327142	0.263414	4.160187	3.349772	0.805198	7.540285
8	0.261383	0.221478	3.323944	2.81649	0.847334	6.322438
8.5	0.278291	0.238798	3.538956	3.036739	0.858089	6.788848
9	0.231126	0.199847	2.939179	2.541402	0.864664	5.752382
9.5	0.261518	0.230663	3.325667	2.933287	0.882015	6.374261
10	0.256588	0.222731	3.262969	2.832418	0.86805	6.050366
10.5	0.3134	0.26769	3.985435	3.404146	0.854147	7.281168
11	0.253289	0.2293	3.221023	2.915955	0.905289	5.933764
11.5	0.300313	0.261996	3.819004	3.331736	0.87241	6.944318
12	0.213331	0.179336	2.712879	2.280572	0.840647	4.884343
12.5	0.254948	0.221857	3.242115	2.8213	0.870204	6.050366
13	0.261937	0.214253	3.330997	2.724605	0.817955	6.218792
13.5	0.259604	0.211656	3.301324	2.691582	0.815304	6.050366
14	0.290406	0.236548	3.693025	3.008119	0.814541	6.827715
14.5	0.262387	0.218602	3.336719	2.779907	0.833126	6.231748
15	0.285311	0.237949	3.628238	3.025939	0.833997	6.737025
15.5	0.265302	0.221211	3.373782	2.813085	0.833807	6.154013
16	0.281668	0.230418	3.581902	2.930172	0.818049	6.568599
16.5	0.2554	0.223038	3.247857	2.836318	0.873289	6.011499
17	0.275021	0.228592	3.497381	2.906949	0.831179	6.283571
17.5	0.301993	0.26396	3.840372	3.356717	0.87406	7.15161
18	0.306628	0.261677	3.89931	3.327688	0.853404	7.164567
18.5	0.257172	0.214189	3.270396	2.723793	0.832863	6.089234
19	0.240494	0.206198	3.058303	2.622172	0.857394	5.830117
19.5	0.243246	0.203316	3.093307	2.585525	0.835845	5.959675

20	0.260419	0.226538	3.311681	2.880834	0.869901	6.529731
20.5	0.258892	0.219658	3.292274	2.793337	0.848452	6.244704
21	0.2928	0.24012	3.723464	3.053547	0.820082	6.892494
21.5	0.239946	0.197223	3.051334	2.508037	0.821948	5.583957
22	0.222369	0.183134	2.827819	2.328866	0.823556	5.285973
22.5	0.274712	0.231675	3.49345	2.946153	0.843336	6.65929
23	0.248419	0.22361	3.159089	2.843593	0.900131	5.830117
23.5	0.27663	0.232961	3.517843	2.962515	0.84214	6.089234
24	0.274389	0.21728	3.489339	2.7631	0.791869	5.972631
24.5	0.286474	0.231866	3.643021	2.948584	0.809379	6.348351
25	0.213576	0.174579	2.715992	2.22008	0.81741	4.754785
25.5	0.256809	0.205757	3.265782	2.616561	0.801205	5.778294
26	0.261988	0.212881	3.331637	2.70716	0.812562	6.10219
26.5	0.19372	0.156924	2.463488	1.995565	0.810057	4.430889
27	0.310308	0.242691	3.946117	3.086239	0.782095	7.073876
27.5	0.225799	0.173299	2.871434	2.2038	0.767491	5.130503
28	0.278671	0.213055	3.543792	2.709368	0.764539	6.218792
28.5	0.26957	0.212109	3.428059	2.697346	0.786843	6.063322
29	0.28406	0.216308	3.612324	2.750736	0.761486	6.141057
29.5	0.272176	0.207291	3.461195	2.636075	0.761608	5.933764
30	0.257689	0.198835	3.276966	2.528533	0.771608	5.894897
30.5	0.312251	0.251958	3.970821	3.204084	0.806907	7.242302
31	0.304588	0.262582	3.873374	3.339194	0.862089	7.15161
31.5	0.26461	0.261143	3.364978	3.320892	0.986898	6.309482
32	0.236743	0.205278	3.010604	2.610477	0.867094	5.298929
32.5	0.288021	0.225085	3.662691	2.862348	0.781488	6.451996
33	0.284286	0.232258	3.615203	2.953567	0.816985	6.788848
33.5	0.238062	0.197334	3.027379	2.509452	0.828919	5.648736
34	0.258099	0.201514	3.282184	2.56261	0.780764	5.881941
34.5	0.35428	0.289594	4.505298	3.682695	0.817414	8.188076
35	0.327669	0.295847	4.166893	3.762217	0.902883	7.073876
Mean	0.280848	0.237932	3.571478	3.025719	0.845473	6.552682
SD	0.045825	0.04602	0.58275	0.585229	0.052473	1.13856

Subject Four-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.109706	0.138002	1.3951	1.754935	1.257927	8.243098
1	0.168982	0.220993	2.148901	2.810318	1.307793	6.408428
1.5	0.242052	0.224123	3.078119	2.850116	0.925928	6.744353
2	0.281539	0.24931	3.580267	3.170413	0.885524	7.416204
2.5	0.291509	0.237591	3.707055	3.021394	0.815039	6.899396

3	0.368899	0.296432	4.691208	3.769656	0.803558	8.656545
3.5	0.29338	0.254319	3.730841	3.234113	0.866859	7.002758
4	0.328568	0.273401	4.178316	3.47678	0.832101	7.829651
4.5	0.310467	0.266348	3.948139	3.387079	0.857892	7.648768
5	0.323161	0.274597	4.109566	3.491983	0.849721	7.777971
5.5	0.302831	0.261129	3.85103	3.320716	0.862293	7.467885
6	0.340205	0.29413	4.326302	3.740379	0.864567	8.553184
6.5	0.268091	0.242616	3.409253	3.085287	0.904975	6.976917
7	0.299428	0.268665	3.807755	3.416544	0.89726	7.558327
7.5	0.28242	0.246553	3.591472	3.135358	0.873001	7.002758
8	0.302709	0.264949	3.84948	3.369297	0.87526	7.72629
8.5	0.33129	0.305709	4.212935	3.887628	0.922784	8.462743
9	0.302606	0.276209	3.848167	3.512485	0.912768	7.545407
9.5	0.287582	0.253136	3.657112	3.219074	0.880223	7.209481
10	0.301248	0.265241	3.830905	3.373009	0.880473	7.648768
10.5	0.301377	0.271944	3.832545	3.458251	0.902338	7.71337
11	0.271023	0.238039	3.446539	3.02708	0.878296	6.770194
11.5	0.28212	0.240346	3.587656	3.056427	0.851929	7.028598
12	0.293415	0.25269	3.731286	3.213401	0.861205	7.442045
12.5	0.360731	0.311475	4.587337	3.960953	0.863454	9.095832
13	0.371124	0.367727	4.719502	4.676303	0.990847	9.651402
13.5	0.239488	0.239464	3.045514	3.045202	0.999897	5.814097
14	0.269903	0.247163	3.432297	3.143118	0.915748	6.511789
14.5	0.266828	0.241032	3.393185	3.06515	0.903325	6.744353
15	0.312303	0.280356	3.971483	3.565221	0.897705	8.062216
15.5	0.313293	0.288262	3.984076	3.665756	0.920102	7.75213
16	0.243888	0.216506	3.101465	2.753257	0.887728	6.124183
16.5	0.299636	0.248561	3.810397	3.160888	0.829543	7.157801
17	0.362429	0.317859	4.608928	4.042135	0.877023	8.966631
17.5	0.356447	0.326456	4.532854	4.15146	0.91586	8.398141
18	0.246055	0.220836	3.129024	2.808323	0.897508	5.723656
18.5	0.340342	0.28228	4.328044	3.589689	0.829402	7.984694
19	0.261549	0.224103	3.326053	2.849861	0.85683	6.382588
19.5	0.27237	0.229225	3.46367	2.915	0.841593	6.770194
20	0.300932	0.247951	3.826883	3.153129	0.823942	7.312843
20.5	0.298402	0.245648	3.794711	3.123848	0.823211	7.18364
21	0.279108	0.233023	3.549345	2.963299	0.834886	6.757273
21.5	0.372241	0.312271	4.733696	3.971079	0.838896	8.992471
22	0.280914	0.254961	3.572317	3.242283	0.907613	6.847715
22.5	0.290481	0.235482	3.693978	2.994563	0.810661	6.847715
23	0.271205	0.220467	3.448852	2.803628	0.812916	6.615151
23.5	0.252572	0.213964	3.211901	2.720927	0.847139	6.640992
24	0.298111	0.258537	3.791007	3.287759	0.867252	7.571248
24.5	0.310686	0.259474	3.950914	3.29967	0.835166	7.545407
25	0.305671	0.263236	3.887144	3.347515	0.861176	7.287003
25.5	0.262943	0.227477	3.343778	2.892775	0.865122	6.330907
26	0.282419	0.234175	3.591453	2.977949	0.829177	7.067358
26.5	0.264851	0.221332	3.368049	2.814625	0.835684	6.679752
27	0.307064	0.259838	3.904866	3.304296	0.8462	7.545407

27.5	0.286012	0.247576	3.637142	3.14836	0.865614	7.080279
28	0.276127	0.245981	3.511436	3.128084	0.890827	6.873556
28.5	0.304566	0.254804	3.873093	3.240283	0.836614	7.287003
29	0.296514	0.249272	3.770696	3.169938	0.840677	7.299922
29.5	0.290677	0.250008	3.696474	3.179289	0.860087	7.209481
30	0.324898	0.277079	4.131647	3.523543	0.852818	7.945934
30.5	0.329352	0.296679	4.188288	3.772799	0.900797	8.34646
31	0.29114	0.267457	3.702354	3.401191	0.918656	7.028598
31.5	0.282952	0.24065	3.598237	3.060289	0.850497	6.770194
32	0.287443	0.242997	3.655344	3.090137	0.845375	7.10612
32.5	0.25262	0.225171	3.212508	2.863443	0.891342	6.640992
33	0.302949	0.257774	3.852534	3.278045	0.85088	7.790892
33.5	0.252747	0.216821	3.214127	2.757258	0.857856	6.305066
34	0.280077	0.241627	3.561672	3.072709	0.862715	7.10612
34.5	0.293145	0.251477	3.72786	3.197968	0.857856	7.312843
35	0.288298	0.245768	3.666219	3.12538	0.85248	7.028598
Mean	0.291687	0.255096	3.709319	3.244001	0.881006	7.331854
SD	0.040983	0.03233	0.521177	0.411136	0.078848	0.769895

Subject Five-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.085353	0	1.295018	0	7.089837
1	0.23849	0.297678	3.618466	4.516492	1.248179	8.497378
1.5	0.296097	0.219752	4.492511	3.334163	0.74216	6.30787
2	0.267078	0.19404	4.05222	2.94405	0.726528	5.812624
2.5	0.281746	0.215547	4.274772	3.270375	0.765041	6.438198
3	0.235724	0.173592	3.576505	2.633802	0.736418	5.200083
3.5	0.286067	0.213848	4.340331	3.244586	0.747543	6.607625
4	0.278164	0.231556	4.220417	3.513271	0.832446	6.646722
4.5	0.254293	0.194886	3.858246	2.956884	0.76638	5.812624
5	0.22473	0.17393	3.4097	2.638938	0.77395	5.447706
5.5	0.244574	0.199929	3.710778	3.0334	0.817456	6.177542
6	0.196372	0.153554	2.979438	2.329781	0.781953	4.95246
6.5	0.194104	0.157286	2.945033	2.386408	0.810316	4.926394
7	0.172027	0.158455	2.61007	2.404145	0.921104	4.431148
7.5	0.203473	0.1717	3.087173	2.605098	0.843846	4.874263
8	0.195893	0.144756	2.972177	2.196296	0.738952	4.639673
8.5	0.185536	0.149156	2.815025	2.26306	0.803922	4.379017
9	0.197306	0.138415	2.993603	2.100083	0.701524	4.457214
9.5	0.225385	0.162952	3.419637	2.472375	0.722993	5.239181
10	0.198041	0.158579	3.004757	2.406032	0.800741	4.483279
10.5	0.234777	0.170909	3.562132	2.593098	0.727962	5.082788
11	0.172259	0.134019	2.61358	2.033396	0.778012	3.857705

11.5	0.218311	0.16097	3.312298	2.442307	0.737345	4.900329
12	0.201846	0.158867	3.062492	2.410399	0.787071	4.71787
12.5	0.19741	0.165429	2.995188	2.50996	0.837997	4.405083
13	0.155248	0.122849	2.355486	1.863917	0.791309	3.36246
13.5	0.183472	0.138673	2.783707	2.103999	0.755827	3.975001
14	0.230352	0.156051	3.494988	2.367664	0.677445	5.056722
14.5	0.231056	0.176737	3.505683	2.681528	0.764909	5.174017
15	0.269922	0.193476	4.095363	2.935494	0.716785	5.812624
15.5	0.197374	0.137711	2.994642	2.089403	0.697714	4.352952
16	0.201012	0.156579	3.04984	2.375676	0.778951	4.71787
16.5	0.185373	0.149746	2.812554	2.272015	0.807812	4.352952
17	0.225675	0.17176	3.424028	2.606017	0.761097	5.291312
17.5	0.132116	0.104113	2.004516	1.579647	0.788044	3.193033
18	0.207501	0.180705	3.148285	2.741733	0.870865	4.926394
18.5	0.210907	0.157152	3.199965	2.384373	0.745125	4.770001
19	0.240997	0.16986	3.656509	2.577185	0.704821	5.51287
19.5	0.190991	0.141155	2.897794	2.14167	0.739069	4.496312
20	0.162743	0.129028	2.469205	1.957665	0.792832	3.688279
20.5	0.172943	0.121962	2.623967	1.850455	0.705213	3.83164
21	0.158605	0.110387	2.406421	1.674844	0.69599	3.675247
21.5	0.093495	0.069207	1.418551	1.050042	0.740221	2.228607
22	0.247161	0.164752	3.750035	2.499685	0.666576	5.538935
22.5	0.201067	0.13978	3.050667	2.120801	0.695193	4.522378
23	0.211064	0.159014	3.202356	2.412631	0.753393	4.483279
23.5	0.330519	0.239168	5.014779	3.62875	0.723611	7.011641
24	0.243869	0.20247	3.700075	3.071958	0.830242	5.447706
24.5	0.2057	0.168252	3.120967	2.552785	0.817947	4.457214
25	0.196254	0.139596	2.977643	2.118008	0.711303	4.509345
25.5	0.163113	0.137716	2.474825	2.089479	0.844294	4.131394
26	0.227471	0.180604	3.451288	2.740203	0.793965	5.538935
26.5	0.162547	0.134431	2.466236	2.039638	0.827024	3.975001
27	0.149231	0.115747	2.264187	1.756165	0.775627	3.388525
27.5	0.134213	0.112761	2.036332	1.710856	0.840165	3.127869
28	0.206748	0.151544	3.136862	2.299286	0.732989	4.71787
28.5	0.117147	0.082854	1.777405	1.257099	0.707266	2.841148
29	0.21015	0.165962	3.188478	2.518045	0.789733	4.900329
29.5	0.226368	0.161921	3.434555	2.456733	0.715299	4.900329
30	0.203298	0.153405	3.084515	2.327518	0.754581	4.379017
30.5	0.187932	0.125894	2.851377	1.910118	0.669893	4.118361
31	0.244955	0.19047	3.716561	2.889895	0.777572	5.74746
31.5	0.102138	0.076798	1.549678	1.165206	0.751902	2.254673
32	0.131663	0.108217	1.997651	1.641919	0.821925	2.919345
32.5	0.239696	0.194531	3.636766	2.951504	0.811574	5.317378

33	0.207926	0.165885	3.15474	2.516882	0.79781	4.522378
33.5	0.221173	0.162238	3.355732	2.461548	0.733536	4.470247
34	0.219004	0.153158	3.322823	2.323775	0.699338	4.509345
34.5	0.214396	0.155373	3.252901	2.357378	0.7247	4.743935
35	0.176721	0.136104	2.681283	2.065026	0.770163	3.961968
Mean	0.2033	0.157871	3.084554	2.39528	0.760307	4.774842
SD	0.050546	0.038189	0.766899	0.579412	0.120079	1.104702

Subject Five-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.070473	0.200453	1.069251	3.04135	2.844374	7.444146
1	0.284699	0.228376	4.319566	3.465012	0.802167	6.170632
1.5	0.326738	0.217421	4.957407	3.298809	0.66543	5.776762
2	0.394591	0.24696	5.986901	3.746974	0.625862	7.010888
2.5	0.267006	0.187318	4.051119	2.842061	0.701549	5.054667
3	0.247461	0.171588	3.754579	2.603403	0.693394	4.831474
3.5	0.230935	0.172983	3.503848	2.624563	0.749052	4.673926
4	0.312028	0.207135	4.734215	3.142735	0.663834	6.275664
4.5	0.219265	0.160926	3.326783	2.441632	0.733932	4.897119
5	0.189073	0.154218	2.8687	2.339864	0.815653	4.22754
5.5	0.198803	0.157639	3.016314	2.391758	0.792941	4.385088
6	0.216252	0.16486	3.281061	2.501325	0.762352	4.805215
6.5	0.13801	0.100922	2.093939	1.531232	0.731269	3.098445
7	0.261395	0.186777	3.965998	2.833858	0.714538	5.829278
7.5	0.156457	0.114569	2.373825	1.73829	0.732274	3.597347
8	0.274513	0.182358	4.165024	2.766809	0.664296	6.104987
8.5	0.180347	0.142944	2.736297	2.168801	0.792604	4.293185
9	0.223772	0.159914	3.395168	2.426276	0.714626	4.975893
9.5	0.167862	0.118449	2.546872	1.797153	0.705631	3.991217
10	0.379598	0.290337	5.759414	4.405112	0.764854	8.980239
10.5	0.178655	0.119378	2.710625	1.811256	0.668206	4.109378
11	0.165762	0.153049	2.51501	2.322129	0.923308	4.411345
11.5	0.161504	0.137983	2.45041	2.09354	0.854363	4.319442
12	0.19151	0.143969	2.90567	2.184362	0.751758	4.989022
12.5	0.28525	0.20768	4.327929	3.151007	0.728063	7.220953
13	0.222377	0.166418	3.374002	2.524962	0.748358	5.225344
13.5	0.262227	0.202181	3.97861	3.067579	0.771018	6.367567
14	0.189199	0.155179	2.870603	2.354438	0.820189	4.857732
14.5	0.117391	0.089775	1.781101	1.362103	0.764753	2.967155
15	0.235841	0.186299	3.578282	2.826603	0.789933	6.19689
15.5	0.189797	0.162843	2.879681	2.470729	0.857987	4.962763
16	0.281187	0.204915	4.266283	3.109057	0.728751	6.827083
16.5	0.189105	0.147855	2.869174	2.243318	0.781869	4.910248
17	0.178977	0.15234	2.71552	2.31136	0.851166	4.582023
17.5	0.190737	0.155909	2.893943	2.365515	0.817402	4.910248

18	0.245046	0.193794	3.717939	2.940325	0.790848	6.354438
18.5	0.196018	0.165185	2.974061	2.506257	0.842705	5.041538
19	0.156882	0.115167	2.380279	1.747364	0.734101	3.912443
19.5	0.197142	0.150662	2.991128	2.285912	0.764231	5.238473
20	0.171355	0.140584	2.599869	2.132995	0.820424	4.595151
20.5	0.177715	0.135455	2.696371	2.055186	0.762204	4.22754
21	0.218962	0.152049	3.322183	2.306956	0.69441	5.225344
21.5	0.280762	0.204947	4.259844	3.109548	0.729968	6.905856
22	0.180024	0.137617	2.731405	2.087978	0.764434	4.476991
22.5	0.172766	0.153288	2.621274	2.325744	0.887257	4.3457
23	0.164659	0.121373	2.498276	1.841519	0.737116	4.043734
23.5	0.148385	0.106173	2.251356	1.610899	0.715524	3.859927
24	0.186124	0.146972	2.823944	2.229913	0.789645	4.700184
24.5	0.189466	0.136663	2.874651	2.073507	0.721307	4.411345
25	0.227837	0.159799	3.456838	2.424536	0.701374	5.26473
25.5	0.259365	0.182223	3.935196	2.764769	0.702575	6.013084
26	0.175276	0.129729	2.659354	1.968304	0.740143	4.148766
26.5	0.366773	0.307159	5.564836	4.66034	0.837462	8.927724
27	0.15325	0.132767	2.325166	2.014396	0.866345	3.886185
27.5	0.183996	0.179605	2.791662	2.725038	0.976135	4.936506
28	0.166101	0.140985	2.520155	2.13909	0.848793	4.608281
28.5	0.088433	0.073928	1.341735	1.121659	0.835976	2.455124
29	0.310945	0.23415	4.717785	3.552613	0.753026	7.864274
29.5	0.142271	0.118729	2.158599	1.801404	0.834524	3.571089
30	0.231555	0.177883	3.513252	2.698909	0.768208	5.304118
30.5	0.149367	0.104175	2.266262	1.580588	0.697443	3.544831
31	0.16448	0.119616	2.495553	1.814858	0.727237	4.017476
31.5	0.223744	0.166838	3.394742	2.531338	0.745664	5.487924
32	0.139682	0.092442	2.119313	1.402566	0.661802	3.308509
32.5	0.23868	0.194963	3.621347	2.958058	0.816839	5.855536
33	0.187578	0.136961	2.846015	2.078032	0.730155	4.555765
33.5	0.165981	0.132361	2.518331	2.008232	0.797446	4.004346
34	0.288032	0.218568	4.370141	3.316208	0.758833	6.564502
34.5	0.171349	0.128208	2.599781	1.945224	0.748226	3.873056
35	0.341327	0.234587	5.178759	3.559249	0.687278	7.982434
Mean	0.212002	0.162536	3.216579	2.466064	0.793106	5.097055
SD	0.064912	0.044003	0.984876	0.66763	0.257211	1.338356

Subject Five-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0	0	0	0	0
1	0.017287	0.163823	0.265031	2.511573	9.476519	5.912408
1.5	0.097722	0.123518	1.498171	1.893661	1.263982	3.131627
2	0.181486	0.15427	2.782364	2.365111	0.850037	3.911285
2.5	0.23168	0.180992	3.551894	2.774793	0.781215	4.65196
3	0.235038	0.180571	3.603363	2.768339	0.768265	4.729926

3.5	0.193676	0.131189	2.969249	2.011258	0.677362	3.950268
4	0.212475	0.150868	3.257464	2.312962	0.71005	4.65196
4.5	0.163283	0.115356	2.503299	1.768523	0.706477	3.742359
5	0.230626	0.17473	3.535723	2.678782	0.757634	5.379642
5.5	0.186619	0.128363	2.861058	1.967937	0.687836	4.184165
6	0.155485	0.134057	2.383739	2.055236	0.86219	3.690382
6.5	0.222563	0.196445	3.412116	3.011706	0.88265	5.093767
7	0.066343	0.052874	1.017112	0.810614	0.796976	1.481351
7.5	0.239409	0.19255	3.670375	2.951981	0.804272	5.431619
8	0.153528	0.12505	2.35374	1.917137	0.814506	3.716371
8.5	0.179567	0.164768	2.752937	2.526058	0.917587	4.366086
9	0.155928	0.132403	2.390533	2.029877	0.849131	3.62541
9.5	0.114299	0.089665	1.752319	1.374653	0.784476	2.611855
10	0.147362	0.10889	2.259211	1.669386	0.738925	3.35253
10.5	0.275818	0.207455	4.228576	3.180496	0.752144	6.445174
11	0.176892	0.12818	2.711927	1.965129	0.724625	3.976257
11.5	0.104637	0.09023	1.604186	1.383318	0.862318	2.390952
12	0.124053	0.108387	1.901853	1.66168	0.873716	2.754792
12.5	0.145811	0.126681	2.235433	1.942146	0.868801	3.365525
13	0.272886	0.222467	4.183613	3.410649	0.81524	6.224271
13.5	0.147782	0.10863	2.265651	1.665408	0.735068	3.339536
14	0.079758	0.073937	1.222771	1.133524	0.927013	1.949145
14.5	0.201862	0.176501	3.094741	2.705937	0.874366	4.664955
15	0.164016	0.143467	2.514537	2.199498	0.874713	3.846314
15.5	0.214066	0.168668	3.281855	2.585844	0.787921	4.599984
16	0.135348	0.103778	2.075028	1.591028	0.76675	3.001684
16.5	0.196848	0.15392	3.017884	2.359743	0.78192	4.522017
17	0.230711	0.18968	3.537026	2.90799	0.822157	5.509584
17.5	0.214574	0.163965	3.289642	2.513749	0.764141	4.755915
18	0.137684	0.109156	2.11083	1.673466	0.7928	3.17061
18.5	0.14477	0.120849	2.219468	1.852733	0.834764	3.456485
19	0.13156	0.111077	2.016949	1.702928	0.844309	3.235582
19.5	0.216523	0.18299	3.31951	2.805419	0.84513	5.119755
20	0.181841	0.145584	2.787811	2.231955	0.800612	4.158177
20.5	0.155049	0.136218	2.377055	2.088362	0.87855	3.586427
21	0.106695	0.091597	1.635735	1.404272	0.858496	2.442929
21.5	0.144798	0.12084	2.219894	1.852607	0.834548	3.326541
22	0.153059	0.115145	2.346557	1.765284	0.752287	3.482473
22.5	0.086045	0.065191	1.319164	0.999443	0.757633	2.001123
23	0.181162	0.150443	2.777403	2.306447	0.830433	4.158177
23.5	0.144217	0.105267	2.210992	1.613847	0.72992	3.092644
24	0.197418	0.131008	3.026612	2.00848	0.663606	4.158177
24.5	0.224659	0.171375	3.444242	2.627345	0.762822	4.963824
25	0.118087	0.098202	1.810395	1.505541	0.831609	2.520895
25.5	0.109712	0.09168	1.681992	1.405543	0.835642	2.312986
26	0.189366	0.161558	2.903167	2.476844	0.853152	4.106199
26.5	0.134279	0.101389	2.058637	1.554398	0.755062	2.936713
27	0.238841	0.180641	3.66167	2.769409	0.756324	5.31467
27.5	0.141668	0.120608	2.171906	1.849047	0.851347	3.183604

28	0.235191	0.206275	3.605714	3.162404	0.877053	5.197721
28.5	0.221039	0.160253	3.388745	2.456843	0.725001	4.911846
29	0.173497	0.147811	2.659891	2.266097	0.851951	4.158177
29.5	0.21345	0.171169	3.272412	2.624197	0.801915	5.028795
30	0.21857	0.176388	3.350892	2.704205	0.80701	5.249699
30.5	0.201155	0.165213	3.083913	2.532882	0.821321	4.846875
31	0.210091	0.165278	3.2209	2.533878	0.786699	5.197721
31.5	0.158477	0.12079	2.429618	1.851828	0.762189	4.093205
32	0.123154	0.105616	1.888077	1.619199	0.857591	3.326541
32.5	0.202461	0.193956	3.103927	2.973547	0.957995	5.353652
33	0.175359	0.170066	2.688434	2.607281	0.969814	4.223148
33.5	0.30954	0.243044	4.745555	3.726106	0.785178	6.912969
34	0.146893	0.116084	2.252023	1.779683	0.79026	3.547445
34.5	0.160695	0.149836	2.463624	2.297136	0.932422	4.158177
35	0.193406	0.163629	2.965103	2.508595	0.84604	5.106761
Mean	0.170712	0.140465	2.617189	2.153471	0.928607	4.014311
SD	0.055967	0.041762	0.858032	0.640252	1.044439	1.210556

Subject Five-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.099646	0	1.517103	0	5.286614
1	0.167645	0.242377	2.552379	3.69017	1.445777	6.761021
1.5	0.242232	0.196689	3.687965	2.99457	0.811984	5.100653
2	0.222261	0.167096	3.383902	2.544018	0.7518	4.316959
2.5	0.20235	0.153798	3.080766	2.341558	0.760057	4.091148
3	0.173489	0.134823	2.641361	2.052665	0.777124	3.586396
3.5	0.295555	0.218313	4.499794	3.323795	0.738655	6.057025
4	0.1063	0.071306	1.618414	1.085629	0.670798	2.271384
4.5	0.231195	0.198483	3.519927	3.021881	0.858507	5.286614
5	0.198374	0.141131	3.020225	2.14871	0.71144	4.290393
5.5	0.066824	0.058148	1.017394	0.885294	0.870159	1.540822
6	0.231377	0.185342	3.522701	2.821816	0.801038	5.007672
6.5	0.234986	0.17166	3.577649	2.613501	0.730508	5.047521
7	0.159276	0.135903	2.424965	2.069111	0.853254	3.506699
7.5	0.11492	0.098502	1.749647	1.499685	0.857136	2.470628
8	0.257322	0.186115	3.917712	2.833586	0.723276	5.472575
8.5	0.162445	0.12303	2.473214	1.873127	0.757365	3.865338
9	0.204543	0.171447	3.114148	2.61026	0.838194	4.808428
9.5	0.231907	0.15651	3.530763	2.382849	0.674882	5.366312
10	0.112569	0.098585	1.713847	1.500949	0.875777	2.8824
10.5	0.135895	0.120652	2.068986	1.836914	0.887833	3.201191
11	0.074422	0.054487	1.133066	0.829557	0.732135	1.673652
11.5	0.240347	0.191536	3.659259	2.916117	0.796915	5.63197
12	0.112052	0.077029	1.705976	1.172756	0.68744	2.523761
12.5	0.148816	0.131165	2.265716	1.996978	0.881389	3.480133
13	0.171919	0.12227	2.617452	1.86155	0.711207	3.626245

13.5	0.104893	0.070047	1.596986	1.066457	0.667794	2.324516
14	0.307128	0.193677	4.675991	2.948723	0.630609	7.013398
14.5	0.057995	0.038465	0.88297	0.585625	0.663245	1.354861
15	0.225811	0.197672	3.437947	3.009546	0.87539	5.499141
15.5	0.089821	0.057688	1.367522	0.878289	0.642249	1.939311
16	0.174975	0.148038	2.663985	2.253872	0.846053	4.157563
16.5	0.168219	0.120132	2.561113	1.829006	0.714145	3.745792
17	0.192793	0.143106	2.935261	2.178776	0.742277	4.50292
17.5	0.196128	0.141002	2.986038	2.146737	0.718925	4.423222
18	0.23111	0.148898	3.518636	2.26696	0.644272	5.326463
18.5	0.183462	0.14207	2.793192	2.162998	0.774382	4.436505
19	0.118463	0.080211	1.803582	1.221204	0.677099	2.709722
19.5	0.245699	0.179093	3.740744	2.726672	0.728912	6.030459
20	0.10578	0.067986	1.610485	1.035088	0.642718	2.603458
20.5	0.175061	0.132646	2.665294	2.01953	0.757714	4.423222
21	0.091618	0.062707	1.394874	0.954702	0.684436	2.20497
21.5	0.314356	0.201381	4.786041	3.066001	0.640613	7.783808
22	0.190475	0.193591	2.899966	2.947402	1.016358	5.299897
22.5	0.224402	0.215736	3.416501	3.284569	0.961384	5.339746
23	0.185168	0.163205	2.819173	2.484789	0.881389	4.330241
23.5	0.281002	0.239136	4.278225	3.640831	0.851014	6.827436
24	0.18182	0.162148	2.768201	2.468682	0.8918	4.795145
24.5	0.150577	0.150146	2.292521	2.285966	0.997141	3.958319
25	0.274072	0.24795	4.172715	3.775012	0.90469	6.907134
25.5	0.157479	0.145885	2.3976	2.22109	0.92638	4.170846
26	0.177984	0.173579	2.709786	2.642728	0.975254	4.702165
26.5	0.122857	0.118653	1.870487	1.80648	0.965781	3.10821
27	0.169863	0.150329	2.586149	2.288753	0.885004	4.170846
27.5	0.245904	0.211683	3.743871	3.222857	0.860835	6.296118
28	0.217138	0.198616	3.305901	3.023909	0.9147	5.366312
28.5	0.184932	0.182917	2.815581	2.784892	0.9891	4.702165
29	0.074447	0.071813	1.133455	1.093344	0.964612	1.912745
29.5	0.176713	0.170276	2.690433	2.592436	0.963576	4.582618
30	0.126654	0.102158	1.928303	1.55535	0.80659	3.214474
30.5	0.086085	0.083863	1.310644	1.276812	0.974186	2.311233
31	0.219105	0.18974	3.335853	2.888773	0.865977	5.167067
31.5	0.113837	0.084142	1.733159	1.281062	0.739149	2.470628
32	0.243627	0.197141	3.709206	3.001454	0.80919	5.326463
32.5	0.206536	0.152077	3.14449	2.315365	0.736324	4.569335
33	0.201512	0.153023	3.068002	2.329757	0.759373	4.356807
33.5	0.166536	0.130298	2.535499	1.983773	0.7824	3.639528
34	0.258369	0.216436	3.933649	3.295217	0.8377	5.7648
34.5	0.181143	0.14709	2.757883	2.239433	0.812012	4.064583
35	0.169854	0.156751	2.586017	2.386524	0.922857	3.984885
Mean	0.178149	0.146275	2.712302	2.227023	0.803575	4.271038
SD	0.06388	0.05067	0.972565	0.771454	0.161198	1.438963

Subject Six-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.334389	0.305042	4.064391	3.707697	0.912239	8.021483
1	0.395194	0.3321	4.803465	4.036581	0.840348	7.423804
1.5	0.373135	0.311686	4.535347	3.788446	0.835316	6.763212
2	0.355607	0.292642	4.322296	3.55698	0.822938	6.370001
2.5	0.346172	0.290475	4.207616	3.530632	0.839105	6.322816
3	0.396016	0.337473	4.813455	4.101883	0.85217	7.423804
3.5	0.331912	0.29692	4.034289	3.608976	0.894576	6.637384
4	0.311563	0.285482	3.786954	3.469945	0.916289	6.354273
4.5	0.283451	0.266797	3.445261	3.242834	0.941245	6.055433
5	0.321913	0.292167	3.912754	3.551202	0.907596	6.653112
5.5	0.271419	0.244965	3.299011	2.97748	0.902537	5.646495
6	0.27883	0.247695	3.389088	3.010655	0.888338	5.709409
6.5	0.276957	0.240572	3.366332	2.924079	0.868625	5.520668
7	0.323506	0.271831	3.932116	3.304026	0.840267	5.99252
7.5	0.327917	0.289921	3.985733	3.523907	0.88413	6.558742
8	0.304232	0.269484	3.697847	3.2755	0.885786	6.338545
8.5	0.257143	0.228647	3.125499	2.779129	0.889179	5.347655
9	0.309354	0.266864	3.760098	3.243652	0.862651	6.023976
9.5	0.282266	0.245576	3.430853	2.984899	0.870017	5.756594
10	0.300194	0.270849	3.648769	3.292093	0.902248	6.181261
10.5	0.273762	0.241428	3.327493	2.934481	0.88189	5.583581
11	0.290284	0.24569	3.528314	2.986284	0.846377	5.772322
11.5	0.336554	0.28711	4.090717	3.48974	0.853088	6.370001
12	0.309063	0.269745	3.756572	3.278666	0.872781	6.196989
12.5	0.28061	0.246115	3.410729	2.991457	0.877073	5.835236
13	0.302675	0.258196	3.678918	3.138296	0.853049	6.149804
13.5	0.249047	0.215561	3.027096	2.620079	0.865542	5.2061
14	0.279612	0.245576	3.398599	2.984899	0.878273	5.756594
14.5	0.350287	0.288824	4.25763	3.510564	0.824535	6.747483
15	0.27967	0.243281	3.399306	2.957002	0.869884	5.882421
15.5	0.280402	0.246359	3.408204	2.994421	0.878592	5.788051
16	0.317966	0.272666	3.864775	3.314168	0.857532	6.370001
16.5	0.27384	0.235473	3.328445	2.862107	0.859893	5.615038
17	0.261098	0.225592	3.173572	2.742006	0.864012	5.442026
17.5	0.299041	0.256209	3.634751	3.114143	0.856769	5.945334
18	0.289405	0.243852	3.517631	2.963951	0.842599	5.583581
18.5	0.29734	0.252573	3.614079	3.069945	0.849441	5.961063
19	0.294664	0.254633	3.581555	3.094988	0.864146	5.882421
19.5	0.284284	0.241891	3.455388	2.940112	0.850878	5.788051
20	0.295974	0.254393	3.59748	3.092065	0.859509	5.976791
20.5	0.247454	0.208727	3.007733	2.53701	0.843496	4.954445
21	0.292991	0.248086	3.561214	3.015415	0.846738	5.630767
21.5	0.293749	0.248101	3.570425	3.015591	0.844603	5.725137
22	0.324202	0.278316	3.94058	3.382851	0.858465	6.4801
22.5	0.281673	0.24565	3.423651	2.985795	0.872108	5.850964

23	0.290037	0.24928	3.525311	3.029918	0.859476	5.99252
23.5	0.264528	0.230143	3.215253	2.797323	0.870017	5.394841
24	0.230429	0.196981	2.800799	2.394247	0.854844	4.545507
24.5	0.294368	0.237284	3.577951	2.88412	0.806081	5.253285
25	0.344171	0.26592	4.183297	3.232181	0.77264	6.055433
25.5	0.323572	0.262607	3.932921	3.191909	0.811587	6.039705
26	0.288804	0.253349	3.510321	3.079382	0.877237	5.725137
26.5	0.310233	0.274393	3.770785	3.335163	0.884474	6.055433
27	0.314082	0.275515	3.817569	3.348799	0.877207	6.165532
27.5	0.279018	0.247272	3.391379	3.005519	0.886223	5.725137
28	0.321114	0.278411	3.903048	3.383998	0.867014	6.511557
28.5	0.29591	0.258527	3.596697	3.142323	0.873669	6.039705
29	0.297313	0.256779	3.61375	3.121071	0.863665	6.039705
29.5	0.299917	0.260859	3.6454	3.170658	0.869769	6.039705
30	0.321429	0.281497	3.906867	3.421509	0.875768	6.417186
30.5	0.262546	0.231918	3.191161	2.818898	0.883345	5.316199
31	0.300902	0.264064	3.657378	3.209618	0.877573	6.039705
31.5	0.301462	0.265833	3.664183	3.231124	0.881813	6.08689
32	0.271301	0.243846	3.297586	2.963872	0.898801	5.788051
32.5	0.270315	0.247476	3.285599	3.007998	0.91551	5.788051
33	0.283395	0.241891	3.444577	2.940112	0.853548	5.788051
33.5	0.244103	0.211921	2.967002	2.575838	0.868162	5.001631
34	0.263787	0.221074	3.206251	2.687093	0.838079	5.158915
34.5	0.270917	0.218228	3.292913	2.652493	0.805516	5.221828
35	0.309907	0.257095	3.766822	3.124913	0.829589	5.835236
Mean	0.298863	0.258191	3.632584	3.138239	0.864693	5.966006
SD	0.032339	0.02674	0.393073	0.325019	0.028207	0.564564

Subject Six-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.334421	0.260547	4.064787	3.166874	0.7791	7.774274
1	0.462387	0.35285	5.620178	4.28879	0.763106	8.795139
1.5	0.325918	0.268079	3.961434	3.258417	0.822535	6.973289
2	0.312106	0.262246	3.793554	3.187523	0.840247	7.0047
2.5	0.323542	0.281201	3.932556	3.417911	0.869132	7.287401
3	0.338372	0.286796	4.112805	3.48592	0.847577	7.460163
3.5	0.289779	0.257206	3.52217	3.126262	0.887596	6.800528
4	0.340952	0.303568	4.144171	3.689773	0.890353	8.245442
4.5	0.254616	0.238793	3.094775	2.902454	0.937856	6.659177
5	0.296109	0.272242	3.599113	3.309021	0.919399	7.271696
5.5	0.289421	0.262152	3.517818	3.186373	0.905781	6.879056
6	0.287806	0.25945	3.498192	3.153539	0.901477	6.894761
6.5	0.284285	0.259718	3.455398	3.156793	0.913583	7.036111
7	0.292119	0.270502	3.550622	3.28787	0.925999	7.271696

7.5	0.284828	0.255907	3.462003	3.110476	0.898462	6.941877
8	0.289262	0.263252	3.51589	3.199748	0.910082	7.0047
8.5	0.254384	0.232928	3.091962	2.831169	0.915654	6.376476
9	0.233796	0.208161	2.841717	2.53013	0.890353	5.654018
9.5	0.259585	0.22342	3.155176	2.715606	0.860683	5.952425
10	0.299069	0.256442	3.635089	3.11698	0.85747	6.737705
10.5	0.24291	0.216355	2.952495	2.629729	0.89068	5.606901
11	0.277859	0.244756	3.377286	2.974932	0.880865	6.455004
11.5	0.261429	0.231368	3.177591	2.812204	0.885011	6.203714
12	0.293782	0.258233	3.570827	3.138744	0.878996	6.941877
12.5	0.207083	0.188167	2.517033	2.287115	0.908655	5.104322
13	0.305087	0.27117	3.708239	3.295986	0.888828	7.224579
13.5	0.27009	0.241523	3.282864	2.935636	0.89423	6.517827
14	0.250015	0.226075	3.038854	2.747868	0.904245	6.156598
14.5	0.24195	0.219385	2.940831	2.66656	0.906737	5.68543
15	0.271294	0.242694	3.297494	2.949869	0.894579	6.376476
15.5	0.248642	0.220002	3.022173	2.674053	0.884812	5.952425
16	0.278335	0.243668	3.38308	2.961714	0.875449	6.533532
16.5	0.2765	0.243043	3.360779	2.954112	0.878996	6.533532
17	0.232042	0.20607	2.820396	2.50472	0.888074	5.57549
17.5	0.280408	0.247546	3.408269	3.008851	0.882809	6.61206
18	0.280799	0.245393	3.413027	2.982678	0.87391	6.439298
18.5	0.280037	0.246568	3.403763	2.996955	0.880483	6.486415
19	0.288486	0.25354	3.506465	3.081704	0.878863	6.737705
19.5	0.248749	0.227253	3.023474	2.762194	0.913583	6.156598
20	0.230121	0.207738	2.797047	2.524986	0.902733	5.71684
20.5	0.26098	0.234377	3.172132	2.848785	0.898066	5.999541
21	0.285388	0.24483	3.468807	2.975835	0.857884	6.376476
21.5	0.253446	0.225726	3.080557	2.743635	0.89063	6.203714
22	0.264763	0.235219	3.218111	2.859017	0.888415	6.250831
22.5	0.258128	0.225809	3.137466	2.744643	0.874796	6.093775
23	0.253077	0.221626	3.076076	2.693797	0.875725	5.889602
23.5	0.29625	0.251605	3.600825	3.058187	0.849302	6.737705
24	0.231567	0.202219	2.814624	2.457908	0.873263	5.339906
24.5	0.269854	0.237201	3.279991	2.8831	0.878996	6.376476
25	0.261505	0.227022	3.178519	2.759381	0.868134	5.905308
25.5	0.293951	0.253065	3.572882	3.075926	0.860909	6.517827
26	0.195103	0.17259	2.37142	2.097781	0.884609	4.523215
26.5	0.299892	0.260147	3.645095	3.162002	0.867468	6.659177
27	0.252233	0.229626	3.065812	2.791039	0.910375	5.71684
27.5	0.276019	0.254018	3.354921	3.087516	0.920295	6.486415
28	0.238561	0.216423	2.899631	2.630553	0.907203	5.622607
28.5	0.290881	0.260149	3.535575	3.162035	0.894348	6.957583

29	0.252601	0.222547	3.070289	2.704987	0.88102	5.936719
29.5	0.249183	0.222327	3.028739	2.702317	0.892225	6.046659
30	0.272679	0.242718	3.314333	2.950164	0.890123	6.329359
30.5	0.269636	0.238577	3.277343	2.899831	0.884812	6.455004
31	0.295109	0.255798	3.586957	3.109141	0.866791	6.737705
31.5	0.188987	0.178733	2.297082	2.172441	0.945739	4.695976
32	0.205832	0.183088	2.501822	2.225376	0.889502	4.947266
32.5	0.272398	0.22346	3.310918	2.716089	0.820343	5.748252
33	0.264525	0.22964	3.21522	2.791203	0.868122	5.842485
33.5	0.306789	0.27133	3.728921	3.297931	0.88442	6.894761
34	0.240271	0.213425	2.920424	2.594111	0.888265	5.449845
34.5	0.278965	0.248171	3.390729	3.016439	0.889614	6.329359
35	0.284143	0.254911	3.453669	3.09837	0.897124	6.549238
Mean	0.274016	0.24132	3.330576	2.933168	0.88325	6.395098
SD	0.038558	0.028415	0.468657	0.345378	0.029952	0.739633

Subject Six-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.388709	0.320773	4.742984	3.914033	0.825226	7.85113
1	0.348342	0.298392	4.250434	3.640943	0.856605	7.176423
1.5	0.291611	0.249119	3.558208	3.039728	0.854286	6.229511
2	0.361959	0.297028	4.416583	3.624302	0.820612	6.966004
2.5	0.380418	0.329831	4.64182	4.02456	0.867022	7.978683
3	0.284588	0.253343	3.472504	3.091262	0.890211	6.244854
3.5	0.296357	0.250886	3.616113	3.061286	0.846568	6.076075
4	0.305851	0.264072	3.731953	3.222175	0.863402	6.214167
4.5	0.269298	0.231342	3.285948	2.822811	0.859055	5.550994
5	0.302195	0.258861	3.687343	3.158596	0.856605	6.2257
5.5	0.290294	0.242714	3.542135	2.961565	0.836096	5.968669
6	0.282869	0.242917	3.45154	2.964048	0.858761	5.815233
6.5	0.321861	0.267917	3.927305	3.269089	0.8324	6.241035
7	0.295798	0.241438	3.609292	2.946	0.816227	5.799889
7.5	0.319929	0.264207	3.903733	3.223818	0.825829	6.413634
8	0.270554	0.232161	3.301265	2.832805	0.858097	5.784545
8.5	0.256014	0.216422	3.123849	2.640754	0.845353	5.247519
9	0.275402	0.235455	3.360427	2.873	0.854951	5.585079
9.5	0.257707	0.211075	3.144516	2.575515	0.81905	5.094082
10	0.29745	0.232689	3.629452	2.83925	0.782281	5.661797
10.5	0.270325	0.212769	3.298477	2.596187	0.787087	5.201488
11	0.2646	0.211038	3.228621	2.575066	0.797575	5.017365

11.5	0.307914	0.248109	3.757127	3.027394	0.805774	5.891951
12	0.324127	0.259443	3.954956	3.165688	0.800436	6.091418
12.5	0.326584	0.264817	3.984936	3.231268	0.810871	6.317706
13	0.277504	0.230046	3.386074	2.806997	0.828983	5.539048
13.5	0.274822	0.226474	3.353352	2.763414	0.824075	5.46567
14	0.250847	0.205575	3.060804	2.508398	0.819523	4.909959
14.5	0.266053	0.214221	3.246354	2.613895	0.805178	5.140113
15	0.272546	0.21362	3.32558	2.606565	0.783793	5.078739
15.5	0.283745	0.22151	3.462228	2.702844	0.780666	5.308893
16	0.256983	0.202003	3.135676	2.464818	0.786057	4.802554
16.5	0.28542	0.223027	3.482665	2.721348	0.781398	5.278206
17	0.239716	0.189215	2.924986	2.308782	0.789331	4.483078
17.5	0.242747	0.183897	2.961972	2.243888	0.757566	4.342246
18	0.262143	0.194311	3.198645	2.370964	0.74124	4.557055
18.5	0.267504	0.196501	3.264048	2.397686	0.734574	4.541712
19	0.255359	0.195056	3.115867	2.380057	0.76385	4.584937
19.5	0.232912	0.178656	2.841965	2.179941	0.767054	4.204153
20	0.283576	0.210191	3.460161	2.564732	0.741218	4.940646
20.5	0.23208	0.178565	2.831814	2.178827	0.769411	4.250184
21	0.303925	0.232091	3.708463	2.831944	0.763644	5.370267
21.5	0.278722	0.207443	3.400938	2.531192	0.744263	4.848585
22	0.292272	0.235406	3.566268	2.8724	0.805436	5.446986
22.5	0.280557	0.22954	3.42333	2.800822	0.818157	5.29355
23	0.312773	0.26687	3.81642	3.256316	0.853238	6.168136
23.5	0.296719	0.262475	3.620531	3.202687	0.88459	6.026355
24	0.270331	0.234876	3.298547	2.865936	0.868848	5.527082
24.5	0.270189	0.231457	3.296809	2.824208	0.856649	5.385612
25	0.294023	0.240419	3.58763	2.933562	0.817688	5.600422
25.5	0.280399	0.24108	3.421395	2.941634	0.859776	5.692484
26	0.240019	0.208469	2.928687	2.543715	0.868551	4.894616
26.5	0.27174	0.229254	3.315738	2.797333	0.843653	5.400955
27	0.25277	0.211116	3.084274	2.576011	0.835208	5.002021
27.5	0.299924	0.245441	3.659639	2.994843	0.818344	5.769202
28	0.214843	0.179878	2.62149	2.194849	0.837252	4.296214
28.5	0.339557	0.276873	4.143236	3.378371	0.815394	6.68982
29	0.226925	0.189291	2.768913	2.309707	0.834157	4.434307
29.5	0.249351	0.211068	3.042551	2.57543	0.846471	4.92229
30	0.277247	0.220876	3.382937	2.6951	0.796675	5.281434
30.5	0.270389	0.224298	3.299258	2.73686	0.829538	5.278206
31	0.203541	0.164636	2.483578	2.008872	0.808862	3.805218
31.5	0.296244	0.232867	3.61473	2.841413	0.786065	5.370267
32	0.288478	0.231614	3.519977	2.826131	0.802884	5.450317
32.5	0.266809	0.219506	3.255578	2.678386	0.822707	5.12477

33	0.321262	0.266485	3.92	3.251619	0.829495	6.091418
33.5	0.298733	0.259192	3.645111	3.16263	0.867636	5.984013
34	0.208321	0.198774	2.54191	2.42542	0.954172	4.464994
34.5	0.242785	0.207187	2.962433	2.52807	0.853376	4.741179
35	0.247289	0.211576	3.017393	2.581628	0.855582	4.879272
Mean	0.281012	0.230996	3.428878	2.818591	0.821751	5.475888
SD	0.035831	0.032303	0.437209	0.394156	0.040254	0.803341

Subject Six-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.533384	0.358828	6.519134	4.385681	0.67274	8.31855
1	0.445773	0.315906	5.448338	3.861073	0.70867	7.577253
1.5	0.430444	0.325424	5.260981	3.977401	0.756019	7.841757
2	0.362466	0.282412	4.430141	3.451707	0.779142	6.877097
2.5	0.37865	0.296854	4.62795	3.628217	0.783979	7.297191
3	0.336315	0.272198	4.110522	3.326863	0.809353	6.869814
3.5	0.336929	0.271754	4.118026	3.321438	0.806561	6.986011
4	0.324212	0.257955	3.962594	3.15278	0.795635	6.705947
4.5	0.282042	0.221401	3.44718	2.706009	0.784992	5.865759
5	0.332	0.262049	4.057774	3.202821	0.789305	6.565916
5.5	0.301907	0.235815	3.689971	2.882179	0.781084	6.208058
6	0.317266	0.252137	3.8777	3.081673	0.794717	6.410326
6.5	0.334198	0.25931	4.084642	3.169345	0.775917	6.741129
7	0.32216	0.262541	3.93751	3.208829	0.814939	6.674829
7.5	0.304266	0.254296	3.718801	3.108064	0.83577	6.433636
8	0.296623	0.243098	3.625397	2.971202	0.819552	6.367487
8.5	0.309653	0.256751	3.784646	3.13807	0.829158	6.845979
9	0.277193	0.228591	3.387918	2.793885	0.824661	6.071687
9.5	0.311424	0.246306	3.806297	3.010406	0.790901	6.239176
10	0.317498	0.249014	3.880527	3.043505	0.784302	6.449214
10.5	0.312136	0.247392	3.814992	3.023674	0.792577	6.554307
11	0.310432	0.251971	3.794169	3.079649	0.81168	6.616581
11.5	0.31282	0.255397	3.823356	3.121514	0.816433	6.783743
12	0.273577	0.229	3.343714	2.798891	0.837061	6.161381
12.5	0.303346	0.248466	3.707566	3.036802	0.819082	6.340169
13	0.284079	0.227421	3.472076	2.779596	0.800557	6.056118
13.5	0.296563	0.240058	3.624664	2.934044	0.809466	6.351918
14	0.332812	0.262815	4.067708	3.212178	0.789678	6.892656
14.5	0.272179	0.226686	3.326632	2.770608	0.832857	6.005791
15	0.328919	0.268955	4.020116	3.287223	0.817694	7.134637

15.5	0.266106	0.223427	3.252408	2.730771	0.839615	5.896877
16	0.304177	0.249491	3.717718	3.04933	0.820215	6.118392
16.5	0.325521	0.263088	3.978586	3.215524	0.808208	6.099145
17	0.305085	0.248077	3.728822	3.032052	0.813139	6.005791
17.5	0.355518	0.284378	4.345222	3.475736	0.799898	6.892656
18	0.305831	0.252593	3.737937	3.087247	0.825923	6.351918
18.5	0.290711	0.236253	3.553129	2.887535	0.812674	5.912436
19	0.31571	0.251678	3.85868	3.07607	0.797182	6.398623
19.5	0.317273	0.253024	3.877781	3.092518	0.797497	6.480369
20	0.291575	0.231571	3.563689	2.830312	0.794209	5.997457
20.5	0.32482	0.260442	3.97002	3.183183	0.801805	6.745192
21	0.280471	0.227002	3.427974	2.774464	0.80936	5.729181
21.5	0.334113	0.269663	4.083609	3.295885	0.807101	7.00157
22	0.268724	0.225145	3.284408	2.751767	0.837827	5.919568
22.5	0.302696	0.242251	3.69962	2.960841	0.800309	6.418058
23	0.309892	0.243254	3.787567	2.973102	0.784964	6.184391
23.5	0.298031	0.238782	3.642596	2.91845	0.801201	6.270294
24	0.278941	0.218693	3.409283	2.672919	0.784012	5.608012
24.5	0.327172	0.270254	3.998764	3.303108	0.826032	6.168813
25	0.312917	0.242398	3.824538	2.962639	0.77464	6.277858
25.5	0.299256	0.24424	3.657577	2.98515	0.816155	6.597034
26	0.263354	0.21877	3.218776	2.673861	0.830707	5.74475
26.5	0.272736	0.219571	3.333439	2.683652	0.80507	5.62359
27	0.284506	0.226097	3.477291	2.763412	0.794703	5.748212
27.5	0.310258	0.244328	3.79204	2.986232	0.7875	6.013035
28	0.273259	0.213843	3.339826	2.613634	0.782566	5.436656
28.5	0.317388	0.24694	3.879192	3.018153	0.778036	6.340169
29	0.307729	0.247509	3.761128	3.025107	0.804308	6.246702
29.5	0.308016	0.24928	3.764637	3.046761	0.809311	6.149529
30	0.303712	0.241596	3.712036	2.952846	0.795479	6.075346
30.5	0.266075	0.22486	3.252032	2.748285	0.845098	5.919568
31	0.202122	0.171878	2.470375	2.100736	0.850372	4.501987
31.5	0.26452	0.202681	3.233021	2.477212	0.766222	5.165602
32	0.288683	0.212407	3.528349	2.596086	0.735779	5.296455
32.5	0.335817	0.254248	4.104434	3.107474	0.757102	6.324592
33	0.356649	0.269629	4.359039	3.29547	0.756008	6.667303
33.5	0.337388	0.27257	4.123633	3.331416	0.807884	6.854237
34	0.289062	0.246935	3.53298	3.01809	0.854262	6.355746
34.5	0.293205	0.241193	3.583618	2.947916	0.822609	6.231124
35	0.301548	0.244815	3.685585	2.992188	0.811862	6.309013
Mean	0.312455	0.249081	3.818891	3.044321	0.800162	6.347448
SD	0.044351	0.027327	0.542069	0.333996	0.030011	0.585758

Subject Seven-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.347668	0.29145	4.395803	3.684998	0.838299	8.674273
1	0.428054	0.333195	5.412176	4.212812	0.778395	8.301853
1.5	0.412694	0.316146	5.217971	3.997247	0.766054	7.876879
2	0.398659	0.305567	5.040518	3.863494	0.766488	7.650119
2.5	0.370708	0.288407	4.687117	3.64653	0.77799	7.246665
3	0.398974	0.31277	5.044501	3.954564	0.783936	7.83027
3.5	0.405844	0.319203	5.131366	4.035902	0.786516	7.991504
4	0.374007	0.295004	4.72882	3.729936	0.788767	7.448392
4.5	0.371033	0.305937	4.691222	3.86817	0.824555	7.743224
5	0.319711	0.282139	4.042321	3.567277	0.882482	7.184595
5.5	0.308313	0.256889	3.898213	3.248023	0.833208	6.501825
6	0.318986	0.252905	4.033151	3.197644	0.79284	6.393203
6.5	0.345399	0.279722	4.367118	3.536718	0.809852	7.184595
7	0.34084	0.260839	4.309465	3.297959	0.765283	6.625965
7.5	0.320569	0.249156	4.053168	3.150243	0.77723	6.455273
8	0.374631	0.299779	4.736719	3.790308	0.800197	7.541497
8.5	0.448886	0.376635	5.67557	4.762048	0.839043	9.931189
9	0.255651	0.242104	3.232373	3.061085	0.947009	6.53286
9.5	0.277263	0.230216	3.505624	2.91078	0.830317	5.927679
10	0.365205	0.279406	4.617531	3.532716	0.765066	7.080251
10.5	0.334933	0.261255	4.234784	3.303221	0.780021	6.53286
11	0.416735	0.323542	5.269066	4.090758	0.776373	8.100126
11.5	0.371129	0.288201	4.692434	3.643917	0.776552	7.138043
12	0.345445	0.276722	4.367696	3.49879	0.801061	6.936315
12.5	0.347072	0.265013	4.388268	3.350738	0.763567	6.501825
13	0.322511	0.251062	4.07773	3.174352	0.778461	6.33879
13.5	0.34125	0.265878	4.314651	3.361673	0.77913	6.672518
14	0.344844	0.270706	4.360094	3.422721	0.785011	6.84321
14.5	0.330345	0.26741	4.176771	3.381044	0.809488	6.719071
15	0.391588	0.32078	4.951118	4.055836	0.819176	8.208749
15.5	0.313554	0.254925	3.964482	3.223194	0.813018	6.563896
16	0.255136	0.206712	3.22586	2.613606	0.810205	5.322497
16.5	0.306407	0.232353	3.874115	2.937801	0.758315	5.931263
17	0.324862	0.243124	4.107455	3.073976	0.748389	6.175958
17.5	0.315965	0.247102	3.994963	3.12428	0.782055	6.300098
18	0.294688	0.229577	3.725943	2.902695	0.77905	5.903775
18.5	0.268673	0.217022	3.397011	2.743956	0.807756	5.601811
19	0.274114	0.21328	3.465812	2.696645	0.77807	5.431119
19.5	0.317835	0.248899	4.018609	3.146996	0.783106	6.408721

20	0.321931	0.251678	4.070396	3.182137	0.781776	6.400935
20.5	0.317408	0.252878	4.013205	3.197311	0.796698	6.455273
21	0.245107	0.202285	3.099049	2.557622	0.825293	5.189107
21.5	0.297802	0.230952	3.765315	2.920082	0.775521	5.881126
22	0.2987	0.231235	3.776671	2.923655	0.774135	5.881126
22.5	0.387179	0.299813	4.895372	3.790738	0.774351	7.643835
23	0.282406	0.239671	3.570655	3.030325	0.848675	6.133112
23.5	0.365267	0.299557	4.618313	3.787501	0.820105	7.572531
24	0.274288	0.240907	3.468009	3.045954	0.878301	6.19522
24.5	0.261232	0.224189	3.302935	2.834573	0.858198	5.701804
25	0.285821	0.231818	3.613824	2.931038	0.811063	5.946789
25.5	0.29971	0.232698	3.789433	2.942155	0.77641	5.903775
26	0.256998	0.200487	3.249406	2.534889	0.780108	5.080354
26.5	0.322582	0.250456	4.078627	3.166688	0.77641	6.354327
27	0.299046	0.231687	3.781045	2.929379	0.774754	5.779485
27.5	0.260369	0.200487	3.292027	2.534889	0.770009	5.080354
28	0.353855	0.278675	4.47403	3.523475	0.787539	7.122525
28.5	0.273351	0.224944	3.456168	2.844125	0.822913	5.686267
29	0.271178	0.208513	3.428693	2.636376	0.768916	5.22018
29.5	0.312474	0.247093	3.950826	3.124162	0.790762	6.276645
30	0.277686	0.222114	3.510969	2.808335	0.799875	5.574145
30.5	0.312989	0.241151	3.957338	3.049034	0.770476	6.059137
31	0.321745	0.256893	4.068042	3.248069	0.798435	6.509689
31.5	0.287058	0.22651	3.629474	2.86392	0.789073	5.670731
32	0.308318	0.242742	3.898274	3.069148	0.787309	6.121283
32.5	0.299131	0.239212	3.78211	3.024514	0.79969	6.121283
33	0.291655	0.235279	3.68759	2.974793	0.806704	6.028065
33.5	0.284015	0.238634	3.590989	3.017212	0.840218	5.981456
34	0.267943	0.221257	3.387782	2.7975	0.825762	5.59305
34.5	0.322204	0.260924	4.073846	3.299043	0.80981	6.571834
35	0.39517	0.331341	4.996405	4.189365	0.838476	8.638155
Mean	0.325069	0.259387	4.110063	3.279609	0.799144	6.601805
SD	0.047403	0.036839	0.599351	0.465778	0.033341	0.964088

Subject Seven-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.287084	0.236354	3.629792	2.98839	0.823295	5.961121
1	0.350195	0.284554	4.427752	3.597806	0.812558	7.15949
1.5	0.252974	0.213815	3.198524	2.703414	0.845207	5.392663
2	0.32117	0.260776	4.060769	3.29717	0.811957	6.514215

2.5	0.301702	0.246126	3.814628	3.111942	0.815792	6.237668
3	0.306169	0.257066	3.871108	3.250259	0.83962	6.483487
3.5	0.262697	0.223684	3.321455	2.828195	0.851493	5.607755
4	0.284677	0.248856	3.599368	3.146451	0.874168	6.32985
4.5	0.337935	0.267564	4.272746	3.382996	0.791762	6.667851
5	0.304741	0.257661	3.85305	3.257786	0.845508	6.514215
5.5	0.24475	0.212653	3.094542	2.688722	0.868859	5.331208
6	0.252448	0.211889	3.191867	2.679053	0.839337	5.331208
6.5	0.277996	0.226335	3.514889	2.861702	0.814165	5.715301
7	0.293241	0.234285	3.707643	2.96223	0.798952	5.930394
7.5	0.284236	0.221467	3.593788	2.80016	0.779167	5.592392
8	0.345251	0.27003	4.365237	3.414176	0.782128	6.729307
8.5	0.273987	0.23115	3.464203	2.922592	0.843655	5.822847
9	0.26173	0.220596	3.309232	2.789139	0.842836	5.715301
9.5	0.289978	0.229332	3.666395	2.899599	0.790858	5.868938
10	0.284603	0.225499	3.598427	2.85114	0.79233	5.79212
10.5	0.287475	0.227362	3.634737	2.874686	0.790892	5.699938
11	0.264576	0.212803	3.34521	2.690615	0.804319	5.315845
11.5	0.25946	0.208475	3.280534	2.635896	0.803496	5.239027
12	0.322493	0.248452	4.077502	3.141353	0.770411	6.191576
12.5	0.369076	0.31843	4.666479	4.026132	0.862777	8.050586
13	0.287867	0.258844	3.639692	3.272738	0.89918	6.32985
13.5	0.255189	0.203556	3.22653	2.573697	0.797667	5.054662
14	0.263672	0.212695	3.333784	2.689248	0.806665	5.300481
14.5	0.245841	0.198842	3.10833	2.514097	0.808825	4.931752
15	0.299772	0.231177	3.790218	2.922931	0.771177	5.699938
15.5	0.30742	0.24402	3.886921	3.085306	0.793766	6.037939
16	0.262516	0.209237	3.31917	2.645527	0.797045	5.146844
16.5	0.277627	0.218606	3.510232	2.763984	0.787408	5.3773
17	0.305458	0.236348	3.86211	2.988305	0.773749	5.868938
17.5	0.261666	0.207515	3.308419	2.623758	0.793055	5.177571
18	0.240803	0.188443	3.044642	2.382618	0.782561	4.624478
18.5	0.282047	0.221236	3.56611	2.797233	0.784393	5.500209
19	0.26219	0.205442	3.31505	2.597537	0.783559	5.023934
19.5	0.295348	0.228687	3.734287	2.891448	0.774297	5.592392
20	0.26794	0.21523	3.387753	2.721294	0.803274	5.300481
20.5	0.26527	0.209071	3.353983	2.643423	0.788144	5.100753
21	0.30013	0.238739	3.794752	3.018545	0.795453	5.838211
21.5	0.38727	0.302416	4.896513	3.823652	0.780893	7.343855
22	0.269159	0.231896	3.403157	2.932021	0.861559	5.592392
22.5	0.24461	0.213163	3.092775	2.695168	0.87144	5.331208
23	0.231659	0.191962	2.929022	2.427109	0.828642	4.778115
23.5	0.264527	0.207761	3.3446	2.626857	0.785403	5.146844

24	0.282329	0.22334	3.569672	2.823835	0.791063	5.500209
24.5	0.270351	0.213486	3.418233	2.699245	0.789661	5.239027
25	0.250548	0.192778	3.167849	2.437426	0.769426	4.670569
25.5	0.38595	0.299081	4.879822	3.781486	0.774923	7.220946
26	0.270406	0.233874	3.418925	2.957027	0.8649	5.607755
26.5	0.234312	0.195217	2.962571	2.468256	0.833147	4.762751
27	0.285125	0.226439	3.605025	2.863018	0.794174	5.530937
27.5	0.258419	0.211861	3.26737	2.678696	0.819833	5.223662
28	0.34483	0.270155	4.359923	3.415748	0.783442	6.591033
28.5	0.263384	0.222183	3.330146	2.809204	0.843568	5.408027
29	0.274641	0.231193	3.472476	2.923124	0.841798	5.607755
29.5	0.261097	0.214865	3.30123	2.71669	0.822933	5.25439
30	0.237116	0.197945	2.998013	2.502759	0.834806	4.96248
30.5	0.277149	0.219402	3.504185	2.774049	0.791639	5.346572
31	0.268262	0.215674	3.391819	2.726911	0.803967	5.361936
31.5	0.308905	0.245552	3.905696	3.104677	0.79491	6.068666
32	0.27244	0.215368	3.444638	2.723044	0.790517	5.25439
32.5	0.273636	0.223138	3.459765	2.821287	0.815456	5.469482
33	0.325736	0.257633	4.118506	3.257431	0.790925	6.32985
Mean	0.283989	0.229989	3.590663	2.907909	0.81083	5.70762
SD	0.034374	0.026729	0.434615	0.337957	0.030549	0.673162

Subject Seven-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.442257	0.337255	5.575738	4.251921	0.762575	8.464499
1	0.407428	0.328263	5.136628	4.138564	0.805697	8.111812
1.5	0.428276	0.339946	5.399474	4.285851	0.793753	8.234486
2	0.354815	0.292656	4.473318	3.68964	0.824811	7.13042
2.5	0.393638	0.316312	4.962775	3.987882	0.803559	7.697787
3	0.34835	0.285017	4.391807	3.593338	0.818191	6.919973
3.5	0.382096	0.311668	4.817256	3.929333	0.815679	7.437105
4	0.338283	0.284062	4.264883	3.581297	0.839718	6.961744
4.5	0.347068	0.282643	4.375643	3.563404	0.814373	6.854403
5	0.33873	0.276019	4.270523	3.479901	0.814865	6.624391
5.5	0.321149	0.262968	4.04887	3.315354	0.818834	6.333041
6	0.323965	0.266715	4.084375	3.362595	0.823282	6.379043
6.5	0.325349	0.27122	4.101819	3.419392	0.833628	6.501716
7	0.336673	0.281131	4.244594	3.544344	0.835025	6.747065
7.5	0.299999	0.246344	3.78222	3.105775	0.821151	5.919016
8	0.292908	0.245682	3.692818	3.09743	0.838771	5.965018

8.5	0.308605	0.256601	3.890721	3.235079	0.831486	6.179698
9	0.290753	0.24049	3.665657	3.031964	0.827127	5.673668
9.5	0.291406	0.241307	3.673884	3.042263	0.828078	5.673668
10	0.28224	0.236151	3.558325	2.977264	0.836704	5.615766
10.5	0.296896	0.244427	3.743104	3.081598	0.823273	5.84592
11	0.309692	0.255799	3.904425	3.224977	0.82598	6.041689
11.5	0.291656	0.246772	3.677036	3.111163	0.846106	5.815233
12	0.287006	0.246967	3.618412	3.113618	0.860493	5.873013
12.5	0.29193	0.245633	3.680488	3.096808	0.841412	5.888348
13	0.263042	0.215185	3.316285	2.712937	0.818065	5.048051
13.5	0.323091	0.26332	4.073348	3.319792	0.815003	6.122105
14	0.276158	0.227839	3.481648	2.872466	0.825031	5.32098
14.5	0.262894	0.215705	3.314418	2.719493	0.820504	5.060298
15	0.262919	0.209244	3.314744	2.638029	0.795847	4.925303
15.5	0.313856	0.250271	3.95693	3.155277	0.797405	5.937982
16	0.337387	0.271652	4.25359	3.424844	0.805165	6.394377
16.5	0.318213	0.253797	4.011851	3.199734	0.79757	5.907295
17	0.331848	0.274845	4.183755	3.465099	0.828227	6.382947
17.5	0.273022	0.237939	3.442112	2.999804	0.871501	5.658334
18	0.25979	0.21938	3.275288	2.765821	0.844451	5.152304
18.5	0.315653	0.254282	3.979573	3.205852	0.805577	6.026355
19	0.260333	0.21633	3.282137	2.727372	0.830975	5.109426
19.5	0.284524	0.223801	3.587124	2.821557	0.786579	5.244309
20	0.264476	0.204786	3.33437	2.581833	0.774309	4.771867
20.5	0.300664	0.229923	3.790602	2.898737	0.764717	5.351649
21	0.310528	0.243202	3.914963	3.066158	0.78319	5.692484
21.5	0.296602	0.23124	3.739399	2.915347	0.77963	5.370267
22	0.288137	0.226746	3.632667	2.858685	0.786938	5.213641
22.5	0.255434	0.204498	3.220376	2.578202	0.80059	4.722945
23	0.297557	0.233817	3.751432	2.947841	0.785791	5.370267
23.5	0.274948	0.218931	3.466397	2.760159	0.796262	5.078739
24	0.261	0.207291	3.290546	2.613415	0.794219	4.830285
24.5	0.293892	0.23135	3.705228	2.916738	0.787195	5.354924
25	0.261843	0.208408	3.301168	2.627495	0.795929	4.802554
25.5	0.279308	0.222157	3.521364	2.800839	0.795385	5.063396
26	0.298471	0.241016	3.762955	3.038594	0.807502	5.566328
26.5	0.288843	0.226551	3.641572	2.856228	0.784339	5.152304
27	0.285129	0.227554	3.594753	2.868874	0.798073	5.232175
27.5	0.263747	0.209868	3.325183	2.645906	0.795718	4.81495
28	0.319739	0.257492	4.031098	3.246321	0.805319	5.849495
28.5	0.295793	0.239884	3.729195	3.024328	0.810987	5.443654
29	0.247983	0.20317	3.126431	2.56146	0.819292	4.692276
29.5	0.261694	0.211948	3.299294	2.672126	0.809908	4.81495

30	0.260993	0.210499	3.290455	2.653859	0.806532	4.78721
30.5	0.306677	0.250949	3.866417	3.163831	0.818285	5.71967
31	0.281942	0.228041	3.554569	2.875014	0.808822	5.186144
31.5	0.261796	0.212311	3.300582	2.676701	0.810979	4.817897
32	0.255954	0.205986	3.226926	2.59696	0.804778	4.725836
32.5	0.304928	0.245814	3.844368	3.09909	0.806138	5.658334
33	0.299576	0.244106	3.776893	3.077553	0.814837	5.569735
33.5	0.374947	0.306114	4.727131	3.859316	0.816418	7.023081
34	0.303453	0.256771	3.825763	3.237233	0.846167	5.84592
34.5	0.272383	0.236341	3.434051	2.979663	0.867682	5.416299
35	0.256198	0.221929	3.230006	2.797965	0.866241	5.182972
Mean	0.303408	0.246776	3.825196	3.111219	0.813838	5.804298
SD	0.041263	0.032731	0.52022	0.412655	0.022894	0.879895

Subject Seven-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.834965	0.545572	10.61805	6.937908	0.653407	14.17913
1	0.59899	0.432395	7.61721	5.49866	0.721873	10.80612
1.5	0.448722	0.338717	5.706293	4.30738	0.754847	8.588677
2	0.441638	0.344544	5.616202	4.381486	0.780151	8.932225
2.5	0.417412	0.334615	5.308134	4.255226	0.801643	8.526216
3	0.385201	0.305232	4.898513	3.881561	0.792396	7.932815
3.5	0.330279	0.266156	4.200074	3.384649	0.805854	6.841037
4	0.412219	0.338156	5.242093	4.300248	0.82033	8.744836
4.5	0.297831	0.254536	3.787451	3.23688	0.854633	6.574243
5	0.34144	0.265658	4.342017	3.37831	0.778051	7.027101
5.5	0.466952	0.378067	5.938113	4.807791	0.80965	9.72863
6	0.212594	0.209513	2.703507	2.664328	0.985508	5.606065
6.5	0.359943	0.282289	4.577309	3.589798	0.784259	7.495574
7	0.350259	0.269975	4.454159	3.433203	0.770786	7.105179
7.5	0.321344	0.264983	4.086454	3.369727	0.824609	7.027101
8	0.301689	0.244895	3.836511	3.114269	0.811745	6.561811
8.5	0.343422	0.2643	4.367213	3.36104	0.769608	6.964637
9	0.314454	0.244559	3.998837	3.110001	0.777726	6.32439
9.5	0.321403	0.249975	4.087209	3.178875	0.777762	6.480547
10	0.358775	0.276954	4.562459	3.521962	0.771944	7.261337
10.5	0.394097	0.334091	5.011634	4.24856	0.847739	8.640493
11	0.283865	0.295928	3.609849	3.763249	1.042495	8.370057
11.5	0.234866	0.223446	2.986732	2.84151	0.951378	6.329123
12	0.29748	0.222291	3.782988	2.826821	0.747245	6.065409

12.5	0.292506	0.218919	3.719726	2.783941	0.748426	5.933996
13	0.334959	0.239431	4.259592	3.044793	0.714809	6.277543
13.5	0.371184	0.274556	4.720254	3.491467	0.739678	6.995869
14	0.300956	0.233013	3.827184	2.963175	0.774244	6.018871
14.5	0.295105	0.226428	3.752785	2.879434	0.767279	6.027691
15	0.382852	0.297356	4.868637	3.781406	0.776687	7.776658
15.5	0.269348	0.224812	3.425241	2.858878	0.83465	5.777838
16	0.371154	0.286472	4.719882	3.643002	0.771842	7.417495
16.5	0.342149	0.262483	4.351033	3.337934	0.767159	6.746017
17	0.287399	0.222244	3.654782	2.826228	0.773296	5.879259
17.5	0.337286	0.268396	4.289192	3.413124	0.79575	7.430514
18	0.201032	0.183201	2.55648	2.329719	0.911299	4.965818
18.5	0.237078	0.185518	3.014864	2.359188	0.782519	5.121975
19	0.267812	0.195925	3.405697	2.491529	0.731577	5.496754
19.5	0.37967	0.267443	4.828176	3.401014	0.70441	6.933405
20	0.366842	0.274892	4.665039	3.49574	0.749349	6.995869
20.5	0.324031	0.260443	4.120621	3.311998	0.803762	6.777247
21	0.258549	0.212744	3.287908	2.705412	0.822837	5.606065
21.5	0.311613	0.237623	3.962707	3.021791	0.762557	6.277543
22	0.318805	0.242053	4.054173	3.078136	0.759251	6.152617
22.5	0.337763	0.254945	4.295257	3.242077	0.754804	6.496164
23	0.32701	0.247895	4.158514	3.152418	0.758064	6.386853
23.5	0.295634	0.222867	3.759509	2.834143	0.75386	5.631057
24	0.290087	0.221548	3.688962	2.817369	0.76373	5.590449
24.5	0.34674	0.258066	4.409411	3.281764	0.744263	6.464931
25	0.289682	0.221238	3.683817	2.813437	0.763729	5.637296
25.5	0.295943	0.223404	3.763432	2.840979	0.75489	5.637296
26	0.300146	0.229913	3.816891	2.923751	0.766003	5.887148
26.5	0.299219	0.222258	3.805101	2.826403	0.742793	5.684143
27	0.299195	0.226842	3.804796	2.884697	0.758174	5.730991
27.5	0.272202	0.204591	3.461525	2.60173	0.751614	5.168823
28	0.332993	0.248592	4.234588	3.161288	0.746539	6.168232
28.5	0.291518	0.218615	3.707166	2.780077	0.74992	5.367344
29	0.368811	0.277319	4.690086	3.526597	0.751926	6.824095
29.5	0.300839	0.24244	3.825697	3.08305	0.805879	6.246311
30	0.254334	0.198685	3.234308	2.52663	0.781197	5.106359
30.5	0.268106	0.207518	3.409446	2.638955	0.774013	5.243244
31	0.359172	0.273104	4.567509	3.472996	0.76037	6.933405
31.5	0.337366	0.267529	4.290204	3.402104	0.792993	6.808479
32	0.308043	0.243826	3.917306	3.10068	0.791534	6.152617
32.5	0.307729	0.253726	3.913321	3.226574	0.82451	6.449317
33						
33.5	0.254661	0.205741	3.238462	2.616359	0.807902	5.387444

34						
34.5						
35						
Mean	0.334203	0.260174	4.249974	3.308567	0.785238	6.753391
SD	0.088637	0.058001	1.127177	0.737586	0.059625	1.480475

Subject Eight-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.161782	0.264459	2.824763	4.617535	1.634663	8.615618
1	0.28615	0.247876	4.996275	4.327985	0.866242	7.307081
1.5	0.316718	0.253089	5.530004	4.419014	0.799098	7.579153
2	0.330411	0.269572	5.769087	4.706816	0.815868	8.08443
2.5	0.275549	0.227555	4.81118	3.973175	0.825821	6.996141
3	0.291581	0.262063	5.09109	4.575701	0.898766	7.825313
3.5	0.281929	0.249133	4.922571	4.349944	0.883673	7.592109
4	0.260455	0.241453	4.547628	4.21585	0.927044	7.592109
4.5	0.228908	0.215422	3.996805	3.761345	0.941088	6.996141
5	0.221503	0.215248	3.867513	3.758307	0.971763	6.840671
5.5	0.241278	0.229916	4.212795	4.01441	0.952909	7.229346
6	0.221457	0.206461	3.866706	3.604877	0.932286	6.581555
6.5	0.218224	0.202274	3.810266	3.531762	0.926907	6.477908
7	0.243935	0.226003	4.259181	3.94609	0.92649	7.294125
7.5	0.218663	0.20585	3.817917	3.594208	0.941405	6.633378
8	0.251063	0.232676	4.383636	4.0626	0.926765	7.592109
8.5	0.15528	0.144302	2.711241	2.51956	0.929301	4.715917
9	0.219361	0.222593	3.830119	3.886552	1.014734	6.685201
9.5	0.204599	0.184189	3.572371	3.215998	0.900242	5.907853
10	0.245168	0.213777	4.280712	3.732608	0.87196	6.814759
10.5	0.24808	0.213345	4.331549	3.725075	0.859987	6.853627
11	0.24459	0.212895	4.27062	3.717216	0.870416	6.892494
11.5	0.217492	0.195287	3.797486	3.409777	0.897904	6.322438
12	0.20384	0.183619	3.559113	3.206051	0.900801	5.972631
12.5	0.202582	0.183441	3.537138	3.202937	0.905517	5.985587
13	0.195959	0.174908	3.421503	3.053957	0.892578	5.752382
13.5	0.220412	0.193536	3.848463	3.3792	0.878065	6.426085
14	0.225816	0.201706	3.942824	3.521844	0.893229	6.581555
14.5	0.225131	0.198179	3.930866	3.46027	0.880282	6.426085
15	0.228667	0.198385	3.992607	3.463869	0.867571	6.555643
15.5	0.225255	0.197678	3.933026	3.451521	0.877574	6.542687
16	0.190997	0.171272	3.334877	2.99046	0.896723	5.571001

16.5	0.174969	0.162252	3.055011	2.832967	0.927318	5.156415
17	0.196373	0.181571	3.428743	3.170279	0.924618	5.700559
17.5	0.193183	0.182377	3.373029	3.184361	0.944066	5.493266
18	0.20429	0.181693	3.566966	3.172414	0.889387	5.363708
18.5	0.243001	0.199757	4.242867	3.487823	0.822044	6.348351
19	0.21062	0.173523	3.677492	3.029767	0.823868	5.752382
19.5	0.227981	0.192288	3.980621	3.357416	0.84344	6.477908
20	0.198181	0.171685	3.460302	2.997677	0.866305	5.700559
20.5	0.212529	0.17969	3.710822	3.137442	0.845484	6.063322
21	0.210684	0.178922	3.678603	3.124034	0.849245	6.03741
21.5	0.213655	0.179699	3.730488	3.137598	0.841069	6.024455
22	0.174727	0.143527	3.050793	2.506025	0.821434	4.819563
22.5	0.214347	0.184514	3.742576	3.221681	0.860819	5.881941
23	0.191106	0.155603	3.336779	2.716885	0.814224	5.208238
23.5	0.2158	0.18523	3.767929	3.234183	0.858345	5.959675
24	0.195376	0.160446	3.411334	2.80143	0.821213	5.260062
24.5	0.22354	0.188924	3.903085	3.298666	0.845143	6.050366
25	0.264163	0.210635	4.612379	3.67776	0.797367	6.840671
25.5	0.231374	0.195365	4.039858	3.411131	0.844369	6.115145
26	0.174513	0.142507	3.04706	2.488209	0.816594	4.599315
26.5	0.213289	0.174111	3.724088	3.04003	0.816315	5.856029
27	0.174597	0.145466	3.048517	2.539875	0.833151	4.845475
27.5	0.210044	0.172545	3.667428	3.012687	0.821471	5.674648
28	0.214217	0.182076	3.740299	3.179104	0.84996	5.804205
28.5	0.221174	0.179981	3.861761	3.142527	0.813755	5.985587
29	0.212611	0.172818	3.71226	3.01746	0.812836	5.674648
29.5	0.226378	0.187576	3.952637	3.275131	0.828594	6.063322
30	0.231078	0.192242	4.034688	3.356601	0.831936	6.322438
30.5	0.209514	0.175448	3.658181	3.063375	0.837404	5.881941
31	0.203759	0.177851	3.557698	3.105337	0.87285	5.933764
31.5	0.211449	0.182993	3.691961	3.195123	0.865427	6.03741
32	0.218529	0.183288	3.815585	3.20026	0.838734	6.115145
32.5	0.262632	0.220785	4.585632	3.854972	0.840663	7.125699
33	0.185293	0.154228	3.235269	2.692871	0.832349	5.000945
33.5	0.187319	0.172587	3.270644	3.013428	0.921356	5.337796
34	0.184378	0.159798	3.219294	2.790117	0.866686	5.247106
34.5	0.195682	0.160679	3.416662	2.805507	0.821125	5.493266
35	0.22325	0.190441	3.898009	3.325152	0.853039	6.426085
Mean	0.220835	0.193904	3.855847	3.385626	0.881738	6.241742
SD	0.032989	0.029529	0.575994	0.515587	0.1024	0.831806

Subject Eight-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.300431	0.227422	5.245613	3.970861	0.756987	6.873556
1	0.32464	0.247016	5.668311	4.312974	0.760892	7.390365
1.5	0.321468	0.249389	5.612928	4.354418	0.775784	7.75213
2	0.287582	0.234673	5.021265	4.09747	0.816023	7.338684
2.5	0.306111	0.248548	5.344803	4.339731	0.811953	7.855492
3	0.232402	0.192543	4.057806	3.361864	0.828493	6.085422
3.5	0.251585	0.207795	4.392757	3.628169	0.825943	6.628071
4	0.2593	0.212555	4.527458	3.711284	0.819728	6.821875
4.5	0.26139	0.215417	4.563952	3.761249	0.824121	6.860635
5	0.265027	0.218805	4.627463	3.820402	0.825593	6.821875
5.5	0.241993	0.195293	4.22528	3.409879	0.807018	6.162944
6	0.241665	0.194541	4.219554	3.396746	0.805001	6.253386
6.5	0.248877	0.20459	4.345475	3.572213	0.822054	6.48595
7	0.228137	0.184991	3.983348	3.229999	0.810875	5.891619
7.5	0.26454	0.211026	4.618954	3.684576	0.797708	6.679752
8	0.246182	0.196298	4.298412	3.427426	0.79737	6.175864
8.5	0.237804	0.194769	4.152135	3.400736	0.819033	6.072502
9	0.242767	0.196132	4.238786	3.424523	0.807902	6.124183
9.5	0.231204	0.184776	4.036897	3.226248	0.79919	5.839938
10	0.220101	0.178659	3.843041	3.119438	0.811711	5.504013
10.5	0.240363	0.183855	4.196815	3.21016	0.764904	5.891619
11						
11.5	0.199585	0.155631	3.484825	2.717372	0.779773	4.987204
12	0.212381	0.17297	3.708234	3.020115	0.814435	5.297289
12.5	0.225829	0.173351	3.94304	3.026766	0.767623	5.504013
13	0.256103	0.19868	4.471633	3.46902	0.775784	6.175864
13.5	0.231536	0.177244	4.042689	3.094738	0.765515	5.452332
14	0.208607	0.158613	3.642337	2.769434	0.760345	5.013044
14.5	0.217918	0.169451	3.804912	2.958664	0.777591	5.32313
15	0.196268	0.150102	3.426898	2.620832	0.764783	4.78048
15.5	0.200889	0.155581	3.507579	2.7165	0.774466	4.858002
16	0.235266	0.179871	4.107818	3.140612	0.764545	5.659055
16.5	0.191574	0.147527	3.344942	2.575877	0.770081	4.599597
17	0.224952	0.172204	3.927732	3.006736	0.765515	5.297289
17.5	0.307103	0.234218	5.362124	4.089522	0.762668	7.18364
18	0.212645	0.171578	3.712857	2.99581	0.806875	5.038885
18.5	0.23536	0.200507	4.109454	3.500918	0.851918	5.633215
19	0.203148	0.156779	3.547026	2.737414	0.771749	4.677118

19.5	0.185041	0.141115	3.230876	2.463921	0.762617	4.315352
20	0.208794	0.160788	3.645611	2.807416	0.770081	5.013044
20.5	0.246458	0.1884	4.30324	3.289518	0.764428	5.891619
21	0.187916	0.146801	3.281082	2.563188	0.781202	4.509156
21.5	0.230254	0.177753	4.02031	3.103616	0.771984	5.34897
22	0.209086	0.156618	3.650708	2.734594	0.749058	4.832161
22.5	0.192745	0.142578	3.365395	2.489458	0.739722	4.418714
23	0.234564	0.180906	4.095561	3.158675	0.771244	5.581534
23.5	0.224662	0.175097	3.922667	3.057253	0.779381	5.32313
24	0.244934	0.180564	4.276632	3.152705	0.737193	5.529853
24.5	0.248788	0.193676	4.34392	3.381639	0.778476	5.736577
25	0.199572	0.163577	3.484586	2.856114	0.819642	4.845082
25.5	0.212082	0.172618	3.703022	3.013972	0.813922	5.142246
26	0.197561	0.158099	3.449483	2.760457	0.800252	4.702959
26.5	0.31988	0.244796	5.585201	4.274218	0.765276	7.442045
27	0.257039	0.205827	4.487982	3.5938	0.800761	6.175864
27.5	0.225969	0.204143	3.94549	3.564398	0.903411	5.878699
28	0.252428	0.220599	4.407482	3.851725	0.873906	6.524709
28.5	0.200871	0.176551	3.507278	3.082643	0.878927	4.987204
29	0.225544	0.188178	3.938062	3.285645	0.83433	5.426491
29.5	0.249174	0.20875	4.350654	3.644844	0.837769	6.227545
30	0.287999	0.241891	5.02856	4.223495	0.839902	7.364524
30.5	0.139846	0.118399	2.441763	2.06729	0.846638	3.604741
31	0.184501	0.164073	3.221452	2.864769	0.889279	4.832161
31.5	0.228766	0.197197	3.994336	3.44312	0.862001	5.994981
32	0.213421	0.176183	3.7264	3.076213	0.825519	5.387731
32.5	0.206398	0.167574	3.603777	2.925898	0.811898	5.064725
33	0.243926	0.19633	4.25903	3.427979	0.804873	5.994981
33.5	0.274749	0.225185	4.7972	3.931798	0.819603	6.796034
34	0.265316	0.230391	4.632501	4.022694	0.868363	6.718513
34.5	0.227249	0.193369	3.967842	3.376285	0.850912	5.607374
35	0.259089	0.206171	4.523782	3.599816	0.795754	6.124183
Mean	0.236194	0.189241	4.124015	3.304201	0.801598	5.801927
SD	0.035642	0.029	0.622322	0.506354	0.036961	0.90239

Subject Eight-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.070806	0.211341	1.236302	3.690078	2.984769	8.318761
1	0.304622	0.243185	5.318793	4.246086	0.798318	7.220788
1.5	0.289852	0.211159	5.060901	3.686898	0.728506	6.251987

2	0.257424	0.184249	4.494709	3.217038	0.715739	5.864468
2.5	0.255319	0.19874	4.457957	3.47007	0.778399	6.174484
3	0.293393	0.228535	5.122742	3.990301	0.778938	7.20787
3.5	0.271029	0.216143	4.732251	3.773922	0.79749	6.665342
4	0.265796	0.206224	4.640876	3.600732	0.775873	6.484499
4.5	0.237924	0.189408	4.154232	3.307125	0.796086	6.019476
5	0.243434	0.202207	4.250439	3.530606	0.830645	6.329492
5.5	0.240248	0.195098	4.194812	3.406481	0.81207	6.200318
6	0.231163	0.195206	4.036182	3.408359	0.844451	6.213235
6.5	0.209285	0.187133	3.654188	3.267406	0.894154	5.929054
7	0.240519	0.213058	4.199534	3.720058	0.885826	6.729928
7.5	0.222835	0.188883	3.890772	3.297965	0.847638	5.993641
8	0.201155	0.169176	3.512235	2.953861	0.84102	5.476948
8.5	0.215948	0.18336	3.770529	3.201528	0.849093	5.890303
9	0.206855	0.16758	3.611751	2.925995	0.810132	5.425279
9.5	0.254384	0.198588	4.441617	3.467417	0.780665	6.562004
10	0.244569	0.200776	4.270244	3.505608	0.820938	6.303658
10.5	0.221934	0.181685	3.875046	3.172285	0.818644	5.774046
11	0.233064	0.201199	4.069374	3.512992	0.863276	6.355327
11.5	0.220259	0.191478	3.845788	3.343268	0.869332	5.993641
12	0.211384	0.17884	3.690834	3.122607	0.846044	5.683625
12.5	0.201742	0.166986	3.52248	2.915633	0.827722	5.347775
13	0.218399	0.176014	3.813316	3.073258	0.805928	5.761129
13.5	0.225145	0.188684	3.931107	3.294485	0.838055	5.941972
14	0.22722	0.187916	3.967328	3.281065	0.827021	5.864468
14.5	0.272411	0.222872	4.756378	3.891424	0.818149	7.039945
15	0.225791	0.188307	3.942383	3.287897	0.833987	5.993641
15.5	0.214413	0.207829	3.743715	3.628762	0.969294	6.109897
16	0.204239	0.185158	3.566082	3.232925	0.906576	5.761129
16.5	0.241048	0.218548	4.208775	3.815915	0.906657	6.87202
17	0.166057	0.148671	2.899414	2.595841	0.895298	4.688991
17.5	0.188759	0.18225	3.295797	3.182135	0.965513	5.489865
18	0.176714	0.166687	3.085489	2.910408	0.943257	4.805247
18.5	0.20781	0.163663	3.62843	2.857602	0.787559	5.115263
19	0.207745	0.162646	3.627297	2.839843	0.782909	5.257353
19.5	0.222425	0.177677	3.883616	3.102289	0.798815	5.761129
20	0.206126	0.171976	3.599032	3.002754	0.834323	5.399444
20.5	0.217861	0.180446	3.803914	3.150649	0.828265	5.606122
21	0.210851	0.17167	3.681531	2.997413	0.814176	5.37361
21.5	0.23782	0.19302	4.152412	3.370187	0.811622	6.09698
22	0.191256	0.164333	3.339395	2.869307	0.859229	5.037759
22.5	0.197665	0.162925	3.4513	2.844714	0.824244	5.115263
23	0.232175	0.190304	4.053847	3.322762	0.819656	6.122815

23.5	0.204593	0.170565	3.572251	2.978119	0.833681	5.412362
24	0.204654	0.168684	3.573316	2.945285	0.824244	5.296105
24.5	0.197989	0.164647	3.456956	2.874786	0.831595	5.115263
25	0.237048	0.188914	4.138933	3.298501	0.796945	6.09698
25.5	0.228978	0.195016	3.998027	3.405037	0.851679	6.122815
26	0.208925	0.176326	3.647895	3.078708	0.843968	5.502782
26.5	0.18898	0.156106	3.299648	2.725654	0.826044	4.908586
27	0.182529	0.148337	3.187011	2.590009	0.812677	4.650239
27.5	0.218226	0.177214	3.810287	3.09422	0.81207	5.631956
28	0.192527	0.159357	3.361591	2.782426	0.827711	4.921503
28.5	0.263876	0.219532	4.607358	3.833099	0.831952	6.729928
29	0.29771	0.25124	5.198117	4.386723	0.843906	7.492052
29.5	0.187033	0.174927	3.26565	3.054282	0.935275	4.960255
30	0.198494	0.181441	3.46576	3.168014	0.914089	5.089428
30.5	0.207794	0.167732	3.628153	2.928655	0.807203	5.089428
31	0.20561	0.16745	3.590018	2.923734	0.814406	5.257353
31.5	0.192618	0.158832	3.36317	2.773254	0.824595	5.102345
32	0.179359	0.146282	3.131659	2.554125	0.815582	4.663156
32.5	0.22353	0.187937	3.902907	3.281444	0.840769	5.786964
33	0.176819	0.145807	3.087317	2.545844	0.824614	4.430645
33.5	0.198537	0.159301	3.466523	2.78144	0.802372	4.93442
34	0.217275	0.177485	3.793691	3.09895	0.816869	5.631956
34.5	0.213837	0.175762	3.733665	3.068854	0.821941	5.476948
35	0.184877	0.165101	3.228014	2.882719	0.893032	4.779412
Mean	0.219267	0.184369	3.828472	3.21914	0.864479	5.781612
SD	0.0349	0.022094	0.60936	0.385771	0.261268	0.742671

Subject Eight-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.184428	0.267365	3.220178	4.668278	1.449695	8.787044
1	0.343053	0.28374	5.989813	4.954186	0.827102	8.398236
1.5	0.294971	0.239988	5.150294	4.190268	0.813598	7.154053
2	0.290269	0.243452	5.068192	4.250744	0.83871	7.309577
2.5	0.28678	0.244119	5.007267	4.262392	0.851241	7.361417
3	0.285188	0.242185	4.97948	4.228621	0.849209	7.465099
3.5	0.26525	0.239519	4.631356	4.182083	0.902993	7.296617
4	0.256354	0.226712	4.476023	3.958469	0.884372	6.998531
4.5	0.222052	0.198687	3.877107	3.469141	0.894776	6.272757
5	0.244208	0.224549	4.263957	3.920702	0.919499	7.089252
5.5	0.227689	0.208464	3.97553	3.639853	0.915564	6.531962

6	0.209373	0.191999	3.655715	3.352361	0.917019	6.052433
6.5	0.210553	0.195403	3.676323	3.411799	0.928047	6.169075
7	0.205127	0.190445	3.58158	3.32523	0.928425	5.922831
7.5	0.215108	0.187172	3.755848	3.26808	0.870131	6.065393
8	0.225914	0.202576	3.944529	3.537047	0.896697	6.454201
8.5	0.23975	0.211263	4.186107	3.688721	0.881182	6.609723
9	0.229546	0.197393	4.007943	3.44654	0.859927	6.298677
9.5	0.192207	0.168962	3.356002	2.950125	0.879059	5.391461
10	0.220094	0.192371	3.84291	3.35886	0.874041	6.233876
10.5	0.222982	0.193549	3.893343	3.379428	0.868002	6.194996
11	0.214671	0.187283	3.748224	3.270016	0.872417	5.948751
11.5	0.203525	0.181172	3.553612	3.163318	0.89017	5.702507
12	0.223347	0.208886	3.899709	3.647209	0.935252	6.506041
12.5	0.224249	0.201524	3.915466	3.518681	0.898662	6.480121
13	0.240537	0.213428	4.199849	3.726516	0.887298	6.687485
13.5	0.242242	0.20668	4.229627	3.608696	0.853195	6.544922
14	0.211244	0.185807	3.68839	3.244253	0.879585	5.88395
14.5	0.199601	0.179797	3.485101	3.139307	0.900779	5.728427
15	0.202477	0.180869	3.535308	3.158032	0.893283	5.780268
15.5	0.211234	0.183223	3.688209	3.199136	0.867396	5.909871
16	0.238211	0.204572	4.159243	3.571892	0.858784	6.557882
16.5	0.205208	0.182545	3.582996	3.187294	0.889561	5.728427
17	0.175393	0.162041	3.062413	2.829282	0.923874	4.950812
17.5	0.213269	0.19371	3.723741	3.382231	0.908289	5.935791
18	0.226205	0.205308	3.949618	3.584745	0.907618	6.272757
18.5	0.220765	0.197676	3.854635	3.451485	0.895412	6.259797
19	0.191456	0.180051	3.342888	3.143742	0.940427	5.624745
19.5	0.220132	0.193762	3.843569	3.383145	0.880209	6.220916
20	0.242613	0.215745	4.2361	3.76698	0.889257	6.894849
20.5	0.228587	0.203099	3.99121	3.54618	0.888498	6.40236
21	0.218028	0.193326	3.806838	3.375538	0.886704	6.039473
21.5	0.190218	0.165025	3.321259	2.881394	0.867561	5.210017
22	0.161293	0.137652	2.816224	2.403443	0.853427	4.419443
22.5	0.198153	0.184908	3.459823	3.228556	0.933156	5.624745
23	0.197799	0.170611	3.453626	2.97893	0.862552	5.469222
23.5	0.212407	0.181573	3.708686	3.170317	0.854836	5.88395
24	0.209053	0.179804	3.650132	3.139429	0.860086	5.676586
24.5	0.231843	0.199843	4.048056	3.489317	0.861974	6.169075
25	0.226269	0.187799	3.950737	3.279034	0.82998	5.858029
25.5	0.229864	0.1895	4.013495	3.308729	0.824401	6.065393
26	0.216473	0.188043	3.77969	3.283299	0.868669	5.909871
26.5	0.213957	0.188642	3.735759	3.293756	0.881683	5.858029
27	0.211827	0.185975	3.698563	3.247175	0.877956	5.961711

27.5	0.202603	0.183617	3.537516	3.206003	0.906287	5.676586
28	0.223861	0.192855	3.908689	3.367314	0.861494	5.935791
28.5	0.224728	0.186372	3.923815	3.254114	0.829324	6.039473
29	0.229789	0.200458	4.012184	3.500055	0.872357	6.506041
29.5	0.236825	0.206998	4.135041	3.614247	0.874053	6.635643
30	0.22005	0.19406	3.842139	3.388356	0.881893	6.220916
30.5	0.210719	0.198363	3.679225	3.463478	0.941361	6.169075
31	0.170349	0.157528	2.974339	2.750483	0.924737	4.950812
31.5	0.217987	0.193846	3.80612	3.384618	0.889257	6.194996
32	0.236453	0.203801	4.128545	3.558434	0.86191	6.583803
32.5	0.21846	0.191555	3.814376	3.344617	0.876845	6.169075
33	0.213493	0.182603	3.727652	3.188305	0.855312	5.935791
33.5	0.217167	0.19018	3.791812	3.32061	0.875732	6.220916
34	0.210188	0.191153	3.669949	3.33759	0.909438	6.156115
34.5	0.215138	0.190348	3.756377	3.323537	0.884772	6.130195
35	0.22105	0.191464	3.859602	3.343027	0.866158	6.272757
Mean	0.222742	0.1975	3.889138	3.448411	0.88976	6.228877
SD	0.028655	0.023566	0.50032	0.411474	0.073725	0.689884

Subject Nine-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.0839	0.17316	1.268593	2.618222	2.063878	9.907989
1	0.352157	0.301596	5.324718	4.56022	0.856425	9.244803
1.5	0.346613	0.259576	5.240884	3.924854	0.748892	7.944961
2	0.306272	0.234345	4.630922	3.543357	0.765152	7.215456
2.5	0.333932	0.266619	5.049141	4.031356	0.798424	8.19697
3	0.276772	0.216616	4.184866	3.275297	0.782653	6.791017
3.5	0.236898	0.192914	3.581964	2.916907	0.814332	6.141096
4	0.299812	0.242566	4.533234	3.667667	0.809062	7.891905
4.5	0.228509	0.193683	3.455127	2.928542	0.847593	6.127832
5	0.279147	0.229642	4.220784	3.472251	0.822656	7.321566
5.5	0.199877	0.166707	3.022191	2.520657	0.83405	5.398328
6	0.203556	0.16426	3.077818	2.483649	0.806951	5.464647
6.5	0.218318	0.176045	3.301027	2.661852	0.806371	5.981931
7	0.239096	0.185096	3.615205	2.798707	0.774149	6.459424
7.5	0.253591	0.198467	3.834367	3.000877	0.782626	6.592062
8	0.162313	0.126783	2.454218	1.916992	0.781101	4.217859
8.5	0.19781	0.154237	2.990937	2.332103	0.779723	5.172845
9	0.254659	0.195125	3.850521	2.950342	0.766219	6.844072
9.5	0.204843	0.158422	3.097282	2.395391	0.773385	5.278955

10	0.236774	0.184143	3.580081	2.784297	0.777719	6.04825
10.5	0.25362	0.199885	3.834798	3.022311	0.788128	6.472689
11	0.234608	0.180338	3.54733	2.726755	0.768678	5.942141
11.5	0.202232	0.162079	3.057798	2.450677	0.801451	5.33201
12	0.235094	0.187383	3.554682	2.83329	0.797059	6.233942
12.5	0.192464	0.148963	2.910111	2.252364	0.773979	5.146318
13	0.249872	0.204652	3.778138	3.094401	0.819028	6.658381
13.5	0.266685	0.211131	4.032344	3.192354	0.791687	6.923655
14	0.195421	0.164589	2.954813	2.488628	0.842228	5.199373
14.5	0.202657	0.165662	3.064227	2.504858	0.817452	5.398328
15	0.190283	0.153248	2.877133	2.31715	0.805368	5.106527
15.5	0.185987	0.147211	2.812174	2.225866	0.791511	5.026945
16	0.190356	0.147967	2.878237	2.237302	0.777317	5.146318
16.5	0.194359	0.15377	2.938764	2.325041	0.791163	5.199373
17	0.222129	0.17016	3.358647	2.572872	0.766044	5.849295
17.5	0.207981	0.161286	3.144723	2.438686	0.775485	5.54423
18	0.223868	0.174952	3.384947	2.645327	0.781497	5.915613
18.5	0.198452	0.162456	3.000654	2.456374	0.818613	5.252428
19	0.228201	0.176845	3.450465	2.673946	0.774952	5.902349
19.5	0.186291	0.15199	2.816764	2.298131	0.815876	4.960626
20	0.23927	0.185355	3.617821	2.802615	0.774669	6.088041
20.5	0.202563	0.166819	3.06281	2.522345	0.823539	5.385065
21	0.205288	0.159077	3.104011	2.405282	0.774895	5.292219
21.5	0.217881	0.171309	3.294423	2.590246	0.786252	5.782976
22	0.188002	0.14958	2.842643	2.261684	0.795627	5.000417
22.5	0.166853	0.132647	2.522863	2.005653	0.794991	4.36376
23	0.212168	0.167434	3.208035	2.531646	0.789158	5.597284
23.5	0.158486	0.124129	2.396346	1.876871	0.783222	4.217859
24	0.25066	0.193538	3.790042	2.926349	0.772115	6.565534
24.5	0.186953	0.14719	2.826785	2.225549	0.787307	4.881044
25	0.210557	0.163686	3.183687	2.474983	0.777395	5.292219
25.5	0.183122	0.138867	2.768857	2.099706	0.75833	4.642297
26	0.229004	0.175705	3.4626	2.656712	0.767259	5.83603
26.5	0.225551	0.179145	3.410391	2.708724	0.794256	5.782976
27	0.191942	0.150969	2.902214	2.282691	0.786534	4.881044
27.5	0.236348	0.186778	3.573643	2.824139	0.790269	6.15436
28	0.190801	0.154236	2.884964	2.332095	0.808362	5.106527
28.5	0.202027	0.159612	3.054706	2.413378	0.790053	5.2259
29	0.187868	0.145056	2.840618	2.193284	0.772115	4.920835
29.5	0.1761	0.142044	2.662674	2.147752	0.806615	4.695352
30	0.137864	0.107919	2.084549	1.631772	0.782794	3.607728
30.5	0.246929	0.195986	3.73364	2.963366	0.793694	6.499217
31	0.136818	0.111572	2.068724	1.687003	0.81548	3.4353

31.5	0.17087	0.126994	2.583606	1.92019	0.743221	4.00564
32	0.202216	0.140484	3.057568	2.124162	0.694723	4.894308
32.5	0.247478	0.183196	3.741942	2.769973	0.74025	6.393106
33	0.207144	0.17153	3.132075	2.593575	0.828069	5.265691
33.5	0.205195	0.161659	3.102605	2.444333	0.787832	5.18611
34	0.268517	0.217475	4.060048	3.288284	0.809913	6.97671
34.5	0.259781	0.219815	3.927953	3.323661	0.846156	6.737963
35	0.265883	0.220204	4.02022	3.32955	0.828201	6.631853
Mean	0.219794	0.175637	3.323338	2.655678	0.809888	5.811398
SD	0.046203	0.035462	0.698608	0.53619	0.154405	1.160468

Subject Nine-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.320287	0.273875	4.809764	4.112806	0.855095	7.540285
1	0.425983	0.339447	6.39702	5.097492	0.796854	9.561393
1.5	0.296705	0.254123	4.455642	3.816176	0.856482	7.177523
2	0.260954	0.244893	3.918768	3.677575	0.938452	7.022053
2.5	0.333656	0.31312	5.010527	4.702139	0.938452	8.978381
3	0.252399	0.23968	3.790295	3.599295	0.949608	6.853627
3.5	0.28072	0.258713	4.215583	3.885103	0.921605	7.864181
4	0.244037	0.2356	3.66472	3.538018	0.965427	7.047964
4.5	0.262206	0.251959	3.937572	3.783683	0.960918	7.592109
5	0.225615	0.219043	3.388082	3.289386	0.97087	6.477908
5.5	0.213548	0.19843	3.206865	2.979831	0.929204	6.076278
6	0.242169	0.221428	3.636661	3.325199	0.914355	6.892494
6.5	0.171685	0.15355	2.578205	2.305874	0.894372	4.715917
7	0.254177	0.219969	3.816994	3.303296	0.865418	6.775892
7.5	0.2701	0.227782	4.056105	3.420621	0.843327	7.047964
8	0.249313	0.211944	3.743944	3.182776	0.850113	6.451996
8.5	0.255116	0.223796	3.831093	3.360756	0.877232	6.685201
9	0.249126	0.2149	3.741148	3.227161	0.862613	6.65929
9.5	0.187822	0.163911	2.820533	2.461464	0.872695	5.260062
10	0.234863	0.207721	3.526956	3.119354	0.884432	6.59451
10.5	0.20541	0.175206	3.084659	2.631073	0.852954	5.648736
11	0.198171	0.16273	2.975953	2.44372	0.821155	5.337796
11.5	0.225692	0.188894	3.389228	2.836627	0.836954	6.205836
12	0.193764	0.169078	2.909767	2.539054	0.872597	5.208238
12.5	0.255132	0.204275	3.831329	3.067609	0.800664	6.426085
13	0.184084	0.155298	2.764398	2.33212	0.843627	4.819563
13.5	0.248994	0.211957	3.739166	3.182968	0.851251	6.322438

14	0.253527	0.201042	3.80723	3.019054	0.792979	6.10219
14.5	0.216038	0.179732	3.244251	2.69904	0.831946	5.376664
15	0.239389	0.194025	3.594924	2.913682	0.810499	5.985587
15.5	0.214174	0.168856	3.216266	2.535725	0.788406	5.311885
16	0.278923	0.222342	4.188611	3.338931	0.797145	6.931362
16.5	0.264129	0.210127	3.966443	3.155495	0.795548	6.322438
17	0.266822	0.212271	4.006883	3.187691	0.795554	6.607466
17.5	0.230546	0.192581	3.462129	2.892008	0.835327	5.985587
18	0.171775	0.148048	2.579558	2.223251	0.861873	4.560447
18.5	0.221734	0.18741	3.329792	2.814345	0.845201	5.713515
19	0.232224	0.19063	3.487318	2.862708	0.820891	6.089234
19.5	0.21882	0.179952	3.28603	2.70235	0.822375	5.609869
20	0.242393	0.195705	3.640038	2.938909	0.807384	6.03741
20.5	0.217788	0.180074	3.270542	2.704189	0.826832	5.363708
21	0.24947	0.199734	3.746314	2.999415	0.800631	6.089234
21.5	0.224531	0.178058	3.371798	2.67391	0.793022	5.609869
22	0.261912	0.210956	3.933153	3.167935	0.805444	6.646334
22.5	0.224141	0.182657	3.365939	2.742977	0.814922	5.609869
23	0.210848	0.168324	3.166317	2.527738	0.798321	5.208238
23.5	0.233116	0.185892	3.500718	2.791557	0.797424	5.830117
24	0.220405	0.181618	3.309831	2.727366	0.82402	5.545089
24.5	0.273539	0.217287	4.107748	3.26302	0.794357	6.814759
25	0.251022	0.204833	3.769607	3.075996	0.815999	6.244704
25.5	0.246976	0.203238	3.708856	3.052037	0.822905	6.115145
26	0.220009	0.181392	3.303886	2.723973	0.824475	5.571001
26.5	0.252832	0.212608	3.796801	3.192749	0.840905	6.529731
27	0.277802	0.231928	4.171774	3.482876	0.834867	7.307081
27.5	0.191847	0.168781	2.880981	2.534598	0.879769	5.130503
28	0.252576	0.216623	3.792954	3.253035	0.857652	6.633378
28.5	0.250115	0.2217	3.755993	3.329279	0.886391	6.788848
29	0.209745	0.184347	3.149755	2.768353	0.878911	5.571001
29.5	0.185542	0.157803	2.78629	2.369735	0.850498	4.897298
30	0.20968	0.171663	3.148772	2.577868	0.81869	5.441442
30.5	0.29722	0.246906	4.463377	3.707807	0.830718	7.70871
31	0.201144	0.169085	3.020593	2.539153	0.840614	4.92321
31.5	0.199048	0.157347	2.989115	2.362888	0.790497	4.83252
32	0.188676	0.150155	2.833353	2.254887	0.795837	4.871387
32.5	0.296284	0.239558	4.449313	3.597451	0.808541	7.747579
33	0.215366	0.189815	3.234164	2.85047	0.881362	5.558045
33.5	0.284962	0.245561	4.279294	3.687603	0.861732	7.345948
34	0.235645	0.206769	3.538695	3.105059	0.877459	6.03741
34.5	0.247026	0.207444	3.709607	3.115203	0.839766	6.296527
35	0.248899	0.218942	3.737726	3.287867	0.879644	6.568599

Mean	0.241006	0.204502	3.619196	3.071019	0.848629	6.238781
SD	0.040405	0.035794	0.606761	0.537522	0.04686	0.967748

Subject Nine-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.079051	0.189089	1.199389	2.868944	2.392005	9.137787
1	0.323054	0.274166	4.901503	4.159759	0.84867	8.113725
1.5	0.338256	0.239526	5.132166	3.634187	0.70812	7.286598
2	0.259879	0.185286	3.942997	2.81124	0.712971	5.816149
2.5	0.219346	0.158981	3.328004	2.412122	0.724795	5.14657
3	0.310481	0.219496	4.710741	3.33028	0.706955	7.299726
3.5	0.246128	0.177081	3.734355	2.686744	0.719467	5.750504
4	0.312086	0.219453	4.735095	3.329633	0.703182	7.286598
4.5	0.354973	0.278143	5.385801	4.220108	0.783562	8.70453
5	0.300595	0.240935	4.56075	3.65556	0.801526	7.286598
5.5	0.32409	0.269713	4.917233	4.092193	0.832215	8.402563
6	0.264274	0.229346	4.009674	3.47974	0.867836	6.905856
6.5	0.263225	0.220717	3.993756	3.348814	0.838512	7.089662
7	0.166552	0.149365	2.526991	2.266228	0.896809	4.805215
7.5	0.280096	0.250987	4.249726	3.808075	0.896076	7.77237
8	0.237627	0.198386	3.60537	3.00999	0.834863	6.026213
8.5	0.208705	0.16878	3.166553	2.560807	0.808705	5.330376
9	0.240378	0.194078	3.647113	2.944628	0.807386	6.157503
9.5	0.216574	0.167851	3.285946	2.546702	0.775028	5.317247
10	0.281153	0.206651	4.265768	3.135396	0.735013	6.905856
10.5	0.223194	0.170845	3.386391	2.592134	0.765456	5.645472
11	0.241824	0.1819	3.669058	2.759864	0.7522	6.078729
11.5	0.246752	0.189229	3.743818	2.871066	0.766882	6.223148
12	0.238663	0.183272	3.621101	2.780681	0.76791	5.868665
12.5	0.251913	0.197416	3.822133	2.995272	0.783665	6.19689
13	0.260089	0.1923	3.946179	2.917658	0.739363	6.354438
13.5	0.238527	0.18364	3.619037	2.786266	0.769892	6.039342
14	0.223816	0.172219	3.395827	2.612974	0.769466	5.54044
14.5	0.259571	0.201338	3.938325	3.054791	0.775657	6.538244
15	0.212639	0.174257	3.226254	2.643906	0.819497	5.461666
15.5	0.251166	0.194061	3.810801	2.944377	0.77264	6.301922
16	0.218547	0.172399	3.315885	2.615711	0.788843	5.724246
16.5	0.221748	0.166475	3.364459	2.525824	0.750737	5.501053
17	0.256328	0.194265	3.889108	2.947465	0.757877	6.288793
17.5	0.250123	0.181533	3.794968	2.754294	0.725775	5.960568

18	0.21131	0.159245	3.206087	2.416135	0.753609	5.212215
18.5	0.286067	0.210696	4.340322	3.19677	0.736528	6.984631
19	0.230008	0.175013	3.489777	2.655367	0.760899	5.737375
19.5	0.208265	0.161867	3.159887	2.455921	0.777218	5.26473
20	0.240546	0.183079	3.649659	2.777746	0.761098	6.118116
20.5	0.202909	0.161106	3.078615	2.44436	0.79398	5.199086
21	0.218516	0.169742	3.315415	2.575396	0.776794	5.435408
21.5	0.28204	0.208107	4.279222	3.157484	0.737864	6.932114
22	0.222365	0.180609	3.373818	2.74027	0.812216	5.592956
22.5	0.242185	0.185558	3.674536	2.815364	0.766182	5.842407
23	0.21821	0.160004	3.310766	2.427642	0.733257	5.461666
23.5	0.230159	0.178964	3.49207	2.715316	0.777566	5.894923
24	0.212088	0.167092	3.217886	2.535189	0.787843	5.40915
24.5	0.228682	0.17168	3.469655	2.6048	0.750738	5.619214
25	0.203897	0.153666	3.093605	2.331479	0.753645	5.094054
25.5	0.229613	0.183473	3.483778	2.783731	0.799055	5.776762
26	0.230289	0.167138	3.494045	2.535892	0.725775	5.487924
26.5	0.251937	0.18016	3.822494	2.733459	0.715098	5.93431
27	0.24454	0.176029	3.710259	2.670788	0.719839	5.645472
27.5	0.239495	0.176773	3.633724	2.682068	0.738105	5.776762
28	0.238052	0.190883	3.61183	2.896152	0.801852	5.973697
28.5	0.216303	0.164778	3.281843	2.500074	0.76179	5.133441
29	0.229832	0.165356	3.487103	2.508854	0.719467	5.369763
29.5	0.253719	0.184755	3.849535	2.803185	0.728188	6.144374
30	0.2151	0.156991	3.263581	2.381932	0.729852	5.14657
30.5	0.216288	0.162987	3.281605	2.472902	0.753565	5.251602
31	0.094104	0.069034	1.42779	1.047412	0.733589	2.310705
31.5	0.091236	0.067574	1.384267	1.025263	0.740654	2.258189
32	0.308576	0.176921	4.681837	2.684315	0.573347	7.903661
32.5	0.256102	0.223989	3.885688	3.398456	0.874609	6.813953
33	0.329063	0.227612	4.992682	3.453418	0.691696	6.813953
33.5	0.26842	0.196148	4.072581	2.976041	0.730751	5.763633
34	0.261568	0.195315	3.968617	2.963406	0.74671	6.039342
34.5	0.26397	0.20651	4.005056	3.133248	0.782323	6.511986
35	0.262955	0.212886	3.989668	3.229998	0.809591	6.485728
Mean	0.242283	0.187213	3.676023	2.840475	0.789355	6.065788
SD	0.048729	0.035032	0.739337	0.531515	0.200838	1.119566

Subject Nine-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)

0.5	0.174431	0.332362	2.646539	5.042729	1.905406	11.40652
1	0.371917	0.334403	5.642878	5.073695	0.899132	9.784556
1.5	0.384315	0.346155	5.830991	5.252006	0.900706	10.11423
2	0.327808	0.30153	4.973643	4.574936	0.919836	8.835112
2.5	0.34578	0.334353	5.246315	5.072941	0.966953	10.15378
3	0.256605	0.25644	3.893321	3.890818	0.999357	7.753799
3.5	0.207864	0.213205	3.153804	3.234829	1.025691	6.58018
4	0.287578	0.282023	4.363255	4.278974	0.980684	8.848298
4.5	0.221017	0.209415	3.353367	3.177337	0.947507	6.58018
5	0.239463	0.225685	3.633237	3.424183	0.942461	7.199957
5.5	0.241004	0.224084	3.656606	3.399896	0.929796	7.22633
6	0.270667	0.243016	4.106679	3.68714	0.89784	7.885667
6.5	0.22665	0.207743	3.438826	3.151966	0.916582	6.751607
7	0.204699	0.191438	3.105784	2.904575	0.935215	6.145018
7.5	0.218768	0.200373	3.319234	3.040143	0.915917	6.421939
8	0.283536	0.251615	4.301931	3.817611	0.887418	8.241709
8.5	0.174016	0.15322	2.64024	2.324723	0.880497	5.050519
9	0.228733	0.219083	3.470439	3.324018	0.957809	6.751607
9.5	0.246668	0.223205	3.742543	3.386555	0.904881	7.120837
10	0.231191	0.197487	3.507733	2.996354	0.854214	6.224138
10.5	0.248499	0.209978	3.770331	3.18587	0.844984	6.69886
11	0.232085	0.198524	3.52129	3.012089	0.855394	6.421939
11.5	0.238304	0.204321	3.61565	3.100044	0.857396	6.61974
12	0.252334	0.214974	3.828509	3.261674	0.851944	7.199957
12.5	0.205935	0.174614	3.124529	2.649308	0.847906	5.93403
13	0.201613	0.186311	3.058954	2.826791	0.924104	5.907657
13.5	0.250589	0.22163	3.802033	3.362655	0.884436	7.305451
14	0.227072	0.195353	3.445232	2.963978	0.860313	6.290072
14.5	0.224342	0.18768	3.403809	2.847559	0.83658	6.118645
15	0.231511	0.193436	3.512577	2.934887	0.835537	6.356006
15.5	0.200414	0.172419	3.040761	2.616006	0.860313	5.551615
16	0.24985	0.220649	3.790821	3.347773	0.883126	7.02853
16.5	0.223713	0.19689	3.394266	2.98729	0.880099	6.224138
17	0.284207	0.23927	4.312099	3.630308	0.841889	7.529625
17.5	0.239314	0.208633	3.630975	3.165471	0.871796	6.382379
18	0.247007	0.213434	3.747688	3.238303	0.86408	6.777981
18.5	0.253703	0.220873	3.849291	3.351176	0.870596	7.068089
19	0.191244	0.163411	2.901641	2.479341	0.854462	5.327441
19.5	0.192287	0.180355	2.917464	2.736419	0.937944	5.591175
20	0.211318	0.195517	3.206203	2.966467	0.925227	6.171391
20.5	0.231956	0.209064	3.51934	3.172011	0.901308	6.395566
21	0.250407	0.216511	3.79928	3.284994	0.864636	6.712048
21.5	0.186944	0.15784	2.836386	2.394817	0.84432	5.090079

22	0.210208	0.190343	3.189368	2.887967	0.905498	6.026338
22.5	0.268503	0.228983	4.073839	3.474225	0.852813	7.476878
23	0.312237	0.261982	4.737388	3.974905	0.83905	8.294456
23.5	0.162307	0.138681	2.46259	2.104119	0.854433	4.312062
24	0.231751	0.21555	3.516229	3.270418	0.930092	6.632928
24.5	0.16911	0.149662	2.565803	2.270734	0.884999	4.826344
25	0.251691	0.223601	3.818765	3.392569	0.888394	7.015342
25.5	0.202976	0.175577	3.079641	2.663931	0.865013	5.459308
26	0.279871	0.238844	4.246315	3.623834	0.853407	7.714239
26.5	0.215803	0.181875	3.274251	2.759488	0.842785	5.775789
27	0.231852	0.203328	3.517751	3.08497	0.876972	6.210952
27.5	0.252804	0.212964	3.835642	3.231171	0.842407	6.857101
28	0.307841	0.273631	4.670693	4.151648	0.888872	8.610937
28.5	0.249648	0.223407	3.787761	3.389621	0.894888	6.804355
29	0.267279	0.23981	4.055269	3.638502	0.897228	7.490065
29.5	0.192871	0.185468	2.926322	2.813996	0.961615	5.657109
30	0.201961	0.192757	3.064241	2.924592	0.954426	6.065898
30.5	0.212208	0.188934	3.219711	2.866591	0.890326	5.999964
31	0.175995	0.156353	2.670264	2.372247	0.888394	4.905465
31.5	0.231238	0.186558	3.508435	2.830538	0.806781	6.329632
32	0.299706	0.250706	4.547269	3.803821	0.836507	8.492256
32.5	0.216418	0.18586	3.283578	2.819941	0.858801	5.736229
33	0.251477	0.240995	3.815514	3.656471	0.958317	7.318637
33.5	0.250607	0.231876	3.802316	3.518117	0.925256	7.041715
34	0.348845	0.298256	5.292814	4.52527	0.854984	9.177967
34.5	0.219348	0.191947	3.328038	2.912294	0.875079	6.013151
35	0.182801	0.183874	2.773535	2.789815	1.00587	5.551615
Mean	0.24021	0.216862	3.644569	3.290321	0.907136	6.851073
SD	0.04611	0.044016	0.6996	0.667835	0.129428	1.32856

Subject Ten-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.254477	0.216935	4.339914	3.699671	0.852476	5.403639
1	0.215236	0.18073	3.670687	3.082222	0.839685	4.416888
1.5	0.225866	0.189681	3.851979	3.234872	0.839795	4.576255
2	0.176463	0.14922	3.009453	2.544845	0.845617	3.526224
2.5	0.230753	0.184973	3.935322	3.154575	0.801605	4.401225
3	0.1993	0.158254	3.398908	2.698905	0.794051	3.714289
3.5	0.206965	0.168951	3.529632	2.881333	0.816327	4.119296
4	0.236167	0.189365	4.027653	3.229489	0.801829	4.526527
4.5	0.207047	0.1685	3.531037	2.87364	0.813823	4.027731
5	0.270083	0.225409	4.606066	3.84418	0.834591	5.438221

5.5	0.219543	0.194255	3.744145	3.312869	0.884813	4.670287
6	0.210424	0.190021	3.588625	3.240664	0.903038	4.542189
6.5	0.234458	0.207718	3.998511	3.542475	0.885948	4.936713
7	0.220394	0.19228	3.758657	3.279186	0.872435	4.638943
7.5	0.234494	0.206371	3.999124	3.519512	0.880071	4.996408
8	0.230292	0.20135	3.927467	3.433871	0.874322	4.824119
8.5	0.189005	0.166286	3.223341	2.835891	0.879799	4.059075
9	0.205509	0.179619	3.504807	3.063267	0.874019	4.338573
9.5	0.234615	0.198376	4.001192	3.383161	0.845538	4.808455
10	0.140445	0.120343	2.395185	2.052358	0.856868	2.930684
10.5	0.253445	0.218108	4.322326	3.719674	0.860572	5.171794
11	0.200621	0.164916	3.421442	2.812515	0.822026	4.059075
11.5	0.198638	0.16154	3.387623	2.754944	0.813238	3.980715
12	0.246897	0.199424	4.210646	3.401027	0.807721	4.761467
12.5	0.270207	0.222027	4.608179	3.786504	0.821692	5.344188
13	0.168189	0.142852	2.86834	2.436236	0.849354	3.549449
13.5	0.232217	0.19353	3.960283	3.300517	0.833404	4.60484
14	0.226126	0.181717	3.856421	3.099055	0.803609	4.294157
14.5	0.226871	0.187422	3.869114	3.196345	0.826118	4.403862
15	0.236924	0.198201	4.04056	3.380175	0.836561	4.748648
15.5	0.250722	0.215841	4.275886	3.681004	0.860875	5.250155
16	0.196595	0.174451	3.352781	2.975127	0.887361	4.184452
16.5	0.229107	0.196091	3.907256	3.344182	0.85589	4.623271
17	0.185631	0.158075	3.1658	2.695849	0.851554	3.714289
17.5	0.244296	0.208135	4.166287	3.549584	0.851978	4.792793
18	0.240565	0.199165	4.102664	3.396609	0.827903	4.716823
18.5	0.236706	0.198233	4.036855	3.380711	0.837462	4.732598
19	0.22621	0.194517	3.857839	3.317352	0.859899	4.638943
19.5	0.2077	0.176377	3.542169	3.007973	0.84919	4.26026
20	0.248198	0.201705	4.232829	3.439925	0.812677	4.827008
20.5	0.178693	0.147009	3.047473	2.50713	0.822691	3.526224
21	0.22954	0.189432	3.914635	3.230617	0.825266	4.401225
21.5	0.192905	0.16673	3.289849	2.843465	0.864315	3.900018
22	0.230738	0.191025	3.935072	3.257788	0.827885	4.448213
22.5	0.250678	0.196971	4.275127	3.359193	0.785753	4.730142
23	0.245346	0.197859	4.184202	3.374336	0.806447	4.824119
23.5	0.218703	0.179555	3.729827	3.062187	0.821	4.435206
24	0.16438	0.138337	2.803379	2.359229	0.841566	3.400847
24.5	0.212409	0.173845	3.622478	2.964803	0.818446	4.294157
25	0.233742	0.185016	3.986295	3.155317	0.791541	4.448213
25.5	0.229966	0.184678	3.921905	3.149542	0.803064	4.419534
26	0.225462	0.18416	3.845093	3.140712	0.816811	4.356845
26.5	0.198994	0.163349	3.393703	2.785798	0.820873	3.886682
27	0.221929	0.181341	3.784834	3.092636	0.817113	4.309829
27.5	0.277153	0.218176	4.726636	3.720825	0.787204	5.109107
28	0.198818	0.162032	3.39069	2.763335	0.814977	3.868692
28.5	0.196859	0.16528	3.357291	2.818736	0.839587	3.978331
29	0.242854	0.194538	4.141694	3.317703	0.80105	4.576255
29.5	0.235797	0.185744	4.021346	3.167722	0.787727	4.419534

30	0.222718	0.180752	3.798299	3.082595	0.811573	4.24714
30.5	0.240612	0.195645	4.103455	3.336574	0.813113	4.623271
31	0.195034	0.159274	3.326162	2.716297	0.816646	3.833405
31.5	0.213265	0.17665	3.637076	3.012636	0.828313	4.072308
32	0.189437	0.150514	3.230717	2.56691	0.794533	3.580999
32.5	0.207615	0.158624	3.540713	2.70521	0.76403	3.565224
33	0.254733	0.19211	4.34428	3.276288	0.754161	4.244597
33.5	0.222416	0.172235	3.793136	2.937343	0.774384	3.896506
34	0.238797	0.200842	4.07251	3.425219	0.841059	4.529239
34.5	0.253073	0.20599	4.315973	3.51301	0.813955	4.748648
35	0.235844	0.195293	4.022143	3.330586	0.828063	4.557852
Mean	0.221799	0.183914	3.782614	3.136515	0.829984	4.38267
SD	0.025987	0.021215	0.443185	0.361807	0.030706	0.505046

Subject Ten-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.290717	0.25505	4.919827	4.316223	0.877312	6.723903
1	0.304181	0.249981	5.14768	4.230449	0.821817	6.062284
1.5	0.333906	0.274759	5.650717	4.649773	0.822864	6.862382
2	0.274066	0.243403	4.638034	4.119125	0.888119	6.108443
2.5	0.242648	0.213046	4.106356	3.6054	0.878005	5.308344
3	0.265753	0.230742	4.497361	3.904863	0.868257	5.708394
3.5	0.261266	0.221293	4.421423	3.744963	0.847004	5.600688
4	0.276653	0.239502	4.681817	4.053117	0.865715	5.939192
4.5	0.275851	0.241737	4.668245	4.090942	0.876334	6.200762
5	0.233247	0.202545	3.947253	3.427689	0.868373	5.292958
5.5	0.289799	0.240802	4.904286	4.075104	0.830927	6.308467
6	0.168005	0.149267	2.843159	2.526052	0.888467	3.862013
6.5	0.241393	0.213465	4.085114	3.612491	0.884306	5.231412
7	0.29867	0.239436	5.054422	4.051997	0.801674	6.016124
7.5	0.274358	0.228458	4.642976	3.866213	0.832702	5.831486
8	0.236462	0.199272	4.00167	3.372288	0.84272	5.246799
8.5	0.281807	0.237272	4.769047	4.015369	0.841965	5.954578
9	0.266432	0.228778	4.508848	3.871634	0.858675	6.016124
9.5	0.238242	0.211899	4.031793	3.58598	0.889426	5.46221
10	0.232747	0.20427	3.938788	3.456872	0.877649	5.077547
10.5	0.248609	0.212848	4.207236	3.602042	0.856154	5.354504
11	0.26545	0.22798	4.492239	3.858115	0.85884	5.862259
11.5	0.295531	0.2459	5.001295	4.161392	0.832063	6.523878
12	0.235352	0.203978	3.982875	3.451931	0.866693	5.323731
12.5	0.23297	0.203642	3.942576	3.446255	0.874113	5.308344
13	0.18699	0.168798	3.164438	2.856587	0.902715	4.215903

13.5	0.229495	0.19375	3.883757	3.278845	0.844245	4.969842
14	0.277978	0.217061	4.704242	3.673342	0.780857	5.616075
14.5	0.266073	0.213423	4.50277	3.611775	0.802123	5.662234
15	0.252754	0.211436	4.277383	3.57814	0.836525	5.539142
15.5	0.261074	0.215604	4.418169	3.648688	0.825837	5.585302
16	0.231965	0.196999	3.92557	3.333834	0.849261	5.15448
16.5	0.247778	0.208064	4.193168	3.521085	0.839719	5.246799
17	0.239193	0.19453	4.047884	3.292053	0.813278	5.200639
17.5	0.240277	0.193816	4.06623	3.279962	0.806635	5.077547
18	0.240115	0.189593	4.063486	3.208496	0.789592	4.923682
18.5	0.249306	0.195196	4.219027	3.303321	0.782958	5.185252
19	0.253517	0.197329	4.290287	3.339421	0.778368	5.092934
19.5	0.283996	0.222093	4.806082	3.758504	0.782031	5.739167
20	0.251142	0.198872	4.250093	3.365523	0.791871	5.139093
20.5	0.236553	0.195196	4.003206	3.303321	0.825169	5.185252
21	0.253766	0.206667	4.294508	3.497439	0.814398	5.400664
21.5	0.241751	0.193713	4.091177	3.278226	0.801292	5.06216
22	0.228959	0.180928	3.874688	3.061852	0.790219	4.769817
22.5	0.263829	0.209925	4.464805	3.552575	0.795684	5.431437
23	0.23765	0.190111	4.02177	3.21727	0.799964	4.846749
23.5	0.25451	0.207415	4.307092	3.510092	0.814956	5.262185
24	0.269104	0.22385	4.554064	3.788223	0.831834	5.923805
24.5	0.214337	0.184229	3.62724	3.117719	0.859529	4.708271
25	0.229786	0.191841	3.888678	3.246536	0.834869	4.939068
25.5	0.237743	0.192908	4.023346	3.264591	0.811412	5.016001
26	0.287081	0.228015	4.858291	3.858716	0.794254	5.877645
26.5	0.263692	0.21158	4.462481	3.580578	0.802374	5.508369
27	0.26536	0.22555	4.490713	3.817007	0.849978	5.646848
27.5	0.233713	0.205623	3.955138	3.479781	0.879813	5.185252
28	0.221983	0.180675	3.756638	3.057581	0.813914	4.600565
28.5	0.271174	0.215096	4.589106	3.64009	0.793203	5.277572
29	0.239841	0.192118	4.058852	3.251229	0.801022	4.769817
29.5	0.269421	0.217652	4.559429	3.683349	0.807853	5.46221
30	0.266378	0.213127	4.50794	3.606772	0.800093	5.446823
30.5	0.285184	0.231096	4.826195	3.910858	0.81034	6.03151
31	0.254699	0.206078	4.310291	3.487474	0.809104	5.385277
31.5	0.259422	0.211966	4.390213	3.587116	0.817071	5.539142
32	0.287005	0.234991	4.857013	3.976771	0.818769	5.954578
32.5	0.161746	0.135782	2.73724	2.297855	0.839479	3.415804
33	0.213022	0.175966	3.604996	2.977885	0.826044	4.569792
33.5	0.309573	0.234716	5.238927	3.972115	0.758192	5.862259
34	0.276407	0.218672	4.677649	3.700596	0.791123	5.554529
34.5	0.248999	0.212265	4.213822	3.592183	0.852476	5.431437

35	0.234164	0.201254	3.962775	3.405829	0.859456	5.200639
Mean	0.25418	0.210927	4.301513	3.569535	0.831144	5.411434
SD	0.029536	0.023338	0.499845	0.394951	0.033635	0.584478

Subject Ten-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.329772	0.278927	5.559373	4.702214	0.845817	7.486718
1	0.33671	0.282858	5.676334	4.76849	0.840065	6.653112
1.5	0.303454	0.252856	5.115697	4.26271	0.833261	5.913878
2	0.243747	0.211654	4.109152	3.568107	0.868332	5.11173
2.5	0.323412	0.270432	5.452165	4.559	0.836182	6.448644
3	0.231397	0.202822	3.900949	3.419222	0.87651	4.938717
3.5	0.211923	0.1835	3.572647	3.093486	0.865881	4.296923
4	0.292561	0.248592	4.932065	4.190815	0.849708	5.59931
4.5	0.276961	0.237337	4.669083	4.00109	0.856933	5.646495
5	0.250165	0.230383	4.217341	3.883846	0.920923	5.583581
5.5	0.263921	0.241158	4.449245	4.065493	0.913749	5.913878
6	0.217588	0.197369	3.668152	3.327287	0.907074	4.828618
6.5	0.221073	0.206536	3.726895	3.48183	0.934244	5.017359
7	0.220861	0.193877	3.723334	3.26843	0.877823	4.765705
7.5	0.224829	0.193324	3.790221	3.259096	0.85987	4.718519
8	0.271983	0.229537	4.585153	3.869591	0.843939	5.473483
8.5	0.272078	0.244582	4.586761	4.123215	0.898938	5.913878
9	0.225711	0.211143	3.805084	3.559491	0.935457	5.316199
9.5	0.236558	0.217015	3.987945	3.658492	0.917388	5.379112
10	0.227897	0.209195	3.841936	3.526654	0.917937	5.331927
10.5	0.268841	0.242397	4.532193	4.086386	0.901636	6.008248
11	0.241068	0.219291	4.063982	3.696856	0.909663	5.442026
11.5	0.241937	0.22581	4.078629	3.806751	0.933341	5.630767
12	0.2426	0.223467	4.089802	3.767267	0.921137	5.59931
12.5	0.238317	0.220422	4.017612	3.715932	0.924911	5.536396
13	0.207188	0.188445	3.492829	3.17685	0.909535	4.797161
13.5	0.264884	0.23464	4.465481	3.955618	0.885821	5.850964
14	0.223538	0.20393	3.768462	3.4379	0.912282	5.269013
14.5	0.232633	0.206218	3.921774	3.47647	0.886453	5.269013
15	0.184796	0.160088	3.115342	2.698801	0.866293	4.120841
15.5	0.29501	0.248265	4.973345	4.185316	0.84155	6.102619
16	0.253981	0.222903	4.281672	3.757754	0.877637	5.709409
16.5	0.278255	0.252521	4.690895	4.257058	0.907515	6.590199
17	0.240018	0.217051	4.046276	3.659105	0.904314	5.615038
17.5	0.249795	0.22551	4.211096	3.801705	0.902783	5.677952
18	0.240699	0.217794	4.057765	3.671627	0.90484	5.59931
18.5	0.204948	0.1905	3.455065	3.211495	0.929504	4.891532
19	0.220227	0.194143	3.71264	3.272911	0.881559	5.11173
19.5	0.226079	0.195154	3.811296	3.289959	0.863213	5.080273

20	0.276702	0.234256	4.66471	3.949139	0.846599	5.898149
20.5	0.274059	0.236637	4.620153	3.98929	0.863454	6.023976
21	0.201912	0.182435	3.40388	3.075534	0.903538	4.655606
21.5	0.239359	0.213063	4.035178	3.591872	0.89014	5.410569
22	0.256419	0.226832	4.322779	3.823985	0.884613	5.725137
22.5	0.219515	0.195738	3.700636	3.299795	0.891683	4.828618
23	0.218832	0.196544	3.689123	3.313386	0.89815	4.860075
23.5	0.253214	0.22247	4.268738	3.750446	0.878584	5.615038
24	0.255586	0.223454	4.308724	3.767041	0.874282	5.709409
24.5	0.241865	0.213159	4.077415	3.593486	0.881315	5.426298
25	0.255746	0.219415	4.31143	3.698953	0.857941	5.59931
25.5	0.196369	0.168055	3.310431	2.83311	0.855813	4.262396
26	0.268678	0.22003	4.529443	3.709321	0.818935	5.473483
26.5	0.272285	0.22641	4.590238	3.816867	0.831518	5.69368
27	0.273777	0.234933	4.615405	3.960555	0.858117	5.929606
27.5	0.247326	0.215566	4.169483	3.634065	0.871586	5.583581
28	0.23119	0.206289	3.897458	3.477662	0.89229	5.363384
28.5	0.221742	0.191277	3.738184	3.224592	0.862609	4.954445
29	0.258649	0.216955	4.360362	3.657474	0.8388	5.489211
29.5	0.260198	0.213514	4.386484	3.599476	0.820583	5.442026
30	0.258843	0.211046	4.363642	3.557863	0.815343	5.379112
30.5	0.228808	0.191208	3.857307	3.223431	0.835669	4.891532
31	0.274969	0.220869	4.635493	3.723459	0.80325	5.567853
31.5	0.183989	0.153404	3.101738	2.586122	0.833765	3.963556
32	0.266794	0.211404	4.497672	3.563898	0.792387	5.190372
32.5	0.269777	0.212057	4.547969	3.574915	0.786047	5.127458
33	0.261171	0.216398	4.402876	3.648084	0.828568	5.331927
33.5	0.225116	0.190313	3.795066	3.208349	0.8454	4.734248
34	0.27199	0.241513	4.585269	4.071483	0.887948	5.929606
34.5	0.225668	0.198993	3.804372	3.354675	0.881795	4.734248
35	0.280362	0.228882	4.726411	3.858546	0.81638	5.69368
Mean	0.24869	0.216639	4.192482	3.65216	0.873016	5.410388
SD	0.03117	0.024397	0.525469	0.411289	0.036334	0.5883

Subject Ten-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.188964	0.17174	3.125723	2.840817	0.908851	5.693108
1	0.330951	0.277441	5.474372	4.589246	0.838315	6.747962
1.5	0.235692	0.20525	3.898672	3.395111	0.870838	5.057093
2	0.280474	0.247825	4.639425	4.099353	0.883591	5.910284
2.5	0.250077	0.233064	4.13662	3.855189	0.931966	5.70862
3	0.244716	0.232896	4.047933	3.852418	0.9517	5.786183
3.5	0.253448	0.2361	4.192366	3.905419	0.931555	5.817208
4	0.243793	0.227997	4.032663	3.771381	0.935209	5.58452
4.5	0.206946	0.196978	3.423174	3.258281	0.95183	4.934586
5	0.250055	0.22689	4.136241	3.753063	0.907361	5.677596

5.5	0.270607	0.239782	4.47621	3.966311	0.886087	5.824685
6	0.276576	0.258188	4.574943	4.270773	0.933514	6.422198
6.5	0.233088	0.226567	3.855583	3.747729	0.972026	5.615545
7	0.248531	0.236005	4.111034	3.903846	0.949602	5.855917
7.5	0.239062	0.228331	3.954408	3.776906	0.955113	5.755158
8	0.25977	0.250161	4.296946	4.138009	0.963012	6.282585
8.5	0.246901	0.239531	4.084079	3.962173	0.970151	5.894771
9	0.20215	0.201196	3.343831	3.328048	0.99528	5.010555
9.5	0.259892	0.250339	4.298961	4.140946	0.963243	6.340006
10	0.21393	0.201683	3.538697	3.336113	0.942752	5.196706
10.5	0.25593	0.239165	4.233428	3.956112	0.934494	6.027691
11	0.279354	0.26224	4.620893	4.337797	0.938736	6.530785
11.5	0.229981	0.221437	3.804189	3.662868	0.962851	5.677596
12	0.226813	0.225511	3.751796	3.730253	0.994258	5.739645
12.5	0.228323	0.220551	3.776765	3.648215	0.965963	5.606065
13	0.234348	0.223325	3.876432	3.694103	0.952965	5.62168
13.5	0.204147	0.190017	3.37687	3.143134	0.930783	4.777867
14	0.257008	0.256799	4.251268	4.247795	0.999183	6.282585
14.5	0.213017	0.200132	3.523587	3.310461	0.939515	4.965818
15	0.237247	0.219242	3.924383	3.626561	0.92411	5.559217
15.5	0.263416	0.23587	4.357265	3.901609	0.895426	5.980843
16	0.247688	0.227636	4.097099	3.765414	0.919044	5.668527
16.5	0.236175	0.220134	3.906662	3.641317	0.932079	5.527986
17	0.25318	0.230735	4.187941	3.816663	0.911346	5.801696
17.5	0.25669	0.23712	4.246007	3.922278	0.923757	6.049897
18	0.239358	0.225367	3.959304	3.72787	0.941547	5.777838
18.5	0.252445	0.236222	4.175781	3.907427	0.935736	6.034384
19	0.214818	0.204344	3.553388	3.380125	0.95124	5.258756
19.5	0.218536	0.20746	3.614879	3.431676	0.94932	5.460419
20	0.249862	0.233388	4.133048	3.860557	0.93407	6.111947
20.5	0.232086	0.216378	3.839023	3.579177	0.932315	5.574832
21	0.19181	0.177807	3.172796	2.941167	0.926995	4.575423
21.5	0.228746	0.20656	3.783764	3.41679	0.903014	5.231286
22	0.274579	0.232241	4.541909	3.841586	0.845809	5.70862
22.5	0.232354	0.196893	3.84345	3.256879	0.847384	4.856507
23	0.288487	0.247387	4.771959	4.092122	0.857535	6.058922
23.5	0.250049	0.229713	4.136154	3.799763	0.91867	5.755158
24	0.250431	0.232931	4.142471	3.853001	0.930121	5.793454
24.5	0.255326	0.247229	4.223437	4.0895	0.968287	5.80907
25	0.200134	0.193601	3.310484	3.202428	0.967359	4.747197
25.5	0.195059	0.173346	3.226534	2.867381	0.888687	4.374541
26	0.288131	0.238297	4.766083	3.941756	0.827043	5.933996
26.5	0.257169	0.219682	4.25392	3.633845	0.854234	5.496754
27	0.23693	0.213073	3.919142	3.524517	0.899308	5.32498
27.5	0.251898	0.231048	4.166728	3.821844	0.917229	5.746606
28	0.245203	0.222792	4.055996	3.685283	0.908601	5.615545
28.5	0.28064	0.253422	4.64217	4.191943	0.903014	6.418085
29	0.249407	0.217584	4.125531	3.599137	0.872406	5.367344
29.5	0.243373	0.21487	4.025714	3.55424	0.882884	5.262517

30	0.222303	0.20556	3.677187	3.400234	0.924683	5.181193
30.5	0.236432	0.217737	3.910912	3.60166	0.920926	5.569007
31	0.145634	0.141485	2.408985	2.340353	0.97151	3.62286
31.5	0.247579	0.206329	4.09529	3.412958	0.833386	5.309364
32	0.293308	0.234117	4.851717	3.872615	0.798195	5.80907
32.5	0.239505	0.201873	3.961733	3.339251	0.842876	5.106359
33	0.249732	0.229036	4.130898	3.78857	0.91713	5.793454
33.5	0.233618	0.218253	3.864366	3.610194	0.934227	5.320807
34	0.241715	0.224169	3.998289	3.708056	0.927411	5.684143
34.5	0.252191	0.229432	4.171583	3.795112	0.909754	5.824685
35	0.232802	0.21155	3.850853	3.499329	0.908715	5.64657
Mean	0.24258	0.222701	4.012599	3.683772	0.920259	5.601355
SD	0.027736	0.022588	0.458789	0.373629	0.042224	0.515123

Subject Eleven-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.077995	0.169928	1.340537	2.920642	2.17871	6.656405
1	0.275256	0.24967	4.730962	4.291197	0.907045	7.575436
1.5	0.352838	0.261729	6.06441	4.498474	0.741783	7.693597
2	0.365289	0.260773	6.278409	4.482034	0.713881	7.982434
2.5	0.29521	0.222841	5.073915	3.830081	0.754857	6.72205
3	0.244451	0.193841	4.201503	3.331634	0.792962	5.697988
3.5	0.27793	0.223103	4.77693	3.834579	0.802729	6.511986
4	0.254303	0.189275	4.370826	3.253157	0.744289	5.776762
4.5	0.27679	0.214559	4.757329	3.687732	0.775169	6.406954
5	0.249834	0.191707	4.294024	3.294969	0.767338	5.842407
5.5	0.218393	0.184895	3.753637	3.177883	0.846614	5.27786
6	0.266248	0.207608	4.576144	3.568259	0.779752	6.262535
6.5	0.248403	0.191903	4.26942	3.298332	0.772548	5.763633
7	0.268652	0.201023	4.617452	3.455081	0.748266	6.144374
7.5	0.205243	0.152475	3.527616	2.620671	0.742901	4.831474
8	0.224968	0.178445	3.866639	3.067019	0.7932	5.422278
8.5	0.228529	0.176859	3.927836	3.039765	0.773903	5.304118
9	0.251433	0.184495	4.321512	3.171	0.733771	5.697988
9.5	0.236135	0.173253	4.058569	2.977792	0.733705	5.382892
10	0.228141	0.178572	3.921165	3.069209	0.782729	5.212215
10.5	0.23946	0.182602	4.115725	3.13847	0.762556	5.382892
11	0.235858	0.177698	4.053815	3.054177	0.753408	5.290989
11.5	0.177481	0.134443	3.050451	2.310739	0.757507	4.043734
12	0.249137	0.194315	4.282048	3.339795	0.779953	5.67173
12.5	0.225372	0.175369	3.873583	3.014157	0.778132	5.054667
13	0.218829	0.160633	3.761129	2.760883	0.734057	4.831474

13.5	0.202201	0.158761	3.475333	2.728713	0.785166	4.595151
14	0.22484	0.178116	3.864442	3.061364	0.792188	5.01528
14.5	0.205105	0.153183	3.525248	2.632835	0.746851	4.490119
15	0.188173	0.139336	3.234219	2.394838	0.740469	4.148766
15.5	0.231524	0.176225	3.979313	3.02886	0.761151	5.172828
16	0.194428	0.144225	3.341733	2.478868	0.741791	4.22754
16.5	0.21737	0.166251	3.736055	2.857438	0.764828	4.805215
17	0.213133	0.160783	3.663221	2.763464	0.754381	4.621409
17.5	0.183189	0.13893	3.148566	2.387856	0.758395	4.043734
18	0.253508	0.203359	4.357177	3.495239	0.80218	5.619214
18.5	0.20793	0.1576	3.573794	2.708746	0.757947	4.437603
19	0.206898	0.155012	3.556057	2.664276	0.749222	4.358829
19.5	0.16531	0.12202	2.841263	2.097211	0.738126	3.531702
20	0.25535	0.192915	4.388824	3.315727	0.755493	5.461666
20.5	0.207012	0.154592	3.558024	2.657048	0.746776	4.358829
21	0.194157	0.154563	3.337079	2.656556	0.796072	4.122508
21.5	0.210904	0.16445	3.62492	2.826489	0.779738	4.437603
22	0.237951	0.181986	4.089789	3.127888	0.764804	4.936506
22.5	0.126287	0.097385	2.170563	1.673811	0.771141	2.652059
23	0.313167	0.24181	5.382553	4.15611	0.772145	6.525115
23.5	0.18556	0.135928	3.189318	2.336261	0.732527	3.781153
24	0.190235	0.144351	3.269667	2.481037	0.758804	3.95183
24.5	0.208017	0.160892	3.575288	2.765325	0.773455	4.542635
25	0.258536	0.193402	4.443583	3.324103	0.748068	5.566698
25.5	0.221791	0.161245	3.812034	2.771405	0.727015	4.726441
26	0.206372	0.158242	3.547026	2.719784	0.766779	4.437603
26.5	0.251015	0.191312	4.314316	3.288172	0.762154	5.514182
27	0.137693	0.10564	2.366598	1.815688	0.767214	3.019671
27.5	0.14762	0.115164	2.537212	1.979383	0.780141	3.255993
28	0.183061	0.146343	3.146366	2.515266	0.799419	4.043734
28.5	0.210765	0.15688	3.622526	2.696376	0.744336	4.411345
29	0.255787	0.183673	4.396337	3.156882	0.718071	5.26473
29.5	0.162142	0.123419	2.786813	2.121265	0.76118	3.361025
30	0.259417	0.19247	4.458724	3.308074	0.741933	5.382892
30.5	0.187478	0.144002	3.222285	2.475031	0.768098	4.043734
31	0.263527	0.200417	4.529368	3.444668	0.760518	5.658601
31.5	0.183086	0.140935	3.146792	2.422317	0.769774	4.017476
32	0.174115	0.138594	2.992607	2.382076	0.795987	3.978088
32.5	0.173834	0.13574	2.987776	2.333036	0.78086	3.912443
33	0.184265	0.142709	3.167048	2.452815	0.77448	3.991217
33.5	0.311728	0.229386	5.357825	3.942568	0.735852	6.511986
34	0.166815	0.121395	2.867127	2.086481	0.727725	3.413541
34.5	0.193505	0.147318	3.325876	2.53203	0.761312	4.043734

35	0.290756	0.233235	4.99737	4.008724	0.802167	6.301922
Mean	0.223396	0.172517	3.839623	2.96514	0.78555	5.016218
SD	0.049014	0.035253	0.842424	0.605904	0.171395	1.10512

Subject Eleven-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.076277	0	1.311009	0	6.9261
1	0.147565	0.209412	2.536277	3.599275	1.419117	6.294061
1.5	0.323807	0.261921	5.565432	4.50177	0.808881	7.08411
2	0.254046	0.19213	4.366418	3.302229	0.756279	5.108986
2.5	0.294148	0.230639	5.055668	3.964114	0.784093	6.346731
3	0.256023	0.204526	4.400387	3.515285	0.798858	5.635686
3.5	0.190123	0.153789	3.267735	2.643246	0.808893	4.266267
4	0.225624	0.188148	3.877912	3.233789	0.833899	5.240661
4.5	0.232398	0.191586	3.994343	3.292876	0.824385	5.293331
5	0.204687	0.163344	3.518058	2.80747	0.798017	4.555952
5.5	0.216969	0.178945	3.729146	3.07562	0.824752	4.871972
6	0.19019	0.154215	3.268892	2.65057	0.810847	4.318937
6.5	0.253519	0.199121	4.357358	3.422393	0.785428	5.741026
7	0.22358	0.184665	3.84278	3.173922	0.825944	5.108986
7.5	0.199731	0.165725	3.432875	2.848394	0.82974	4.634956
8	0.21984	0.182294	3.778493	3.133187	0.829216	5.161656
8.5	0.182915	0.151088	3.14385	2.596818	0.825999	4.266267
9	0.172588	0.149921	2.966363	2.576771	0.868663	4.187262
9.5	0.220306	0.192163	3.786509	3.302807	0.872257	5.517179
10	0.149497	0.124987	2.569488	2.148215	0.836048	3.634227
10.5	0.176849	0.143803	3.039598	2.471612	0.813138	4.187262
11	0.197999	0.156694	3.403114	2.693186	0.791389	4.569119
11.5	0.210004	0.151583	3.609436	2.605333	0.721812	4.555952
12	0.239837	0.169425	4.122204	2.911985	0.706415	5.214326
12.5	0.234608	0.17524	4.032325	3.011945	0.74695	5.266996
13	0.263673	0.206552	4.531878	3.550117	0.783365	6.109715
13.5	0.190177	0.154842	3.268668	2.661343	0.814198	4.476947
14	0.199202	0.167121	3.423779	2.8724	0.838956	4.845637
14.5	0.113639	0.097044	1.953167	1.667943	0.853968	2.870513
15	0.258994	0.217123	4.451456	3.731809	0.838334	6.478405
15.5	0.178957	0.13383	3.075817	2.30021	0.747837	4.213597
16	0.213174	0.17142	3.663928	2.946288	0.804134	4.977312
16.5	0.165837	0.125394	2.85032	2.155209	0.756129	3.923912
17	0.198867	0.152566	3.41802	2.622231	0.767178	4.674459

17.5	0.235773	0.17639	4.052346	3.031708	0.748137	5.372336
18	0.139277	0.107327	2.393832	1.844684	0.770599	3.107528
18.5	0.198682	0.156849	3.414854	2.695847	0.789447	4.503282
19	0.208343	0.154182	3.580891	2.649995	0.740038	4.766632
19.5	0.222775	0.163435	3.828943	2.809036	0.733632	5.029982
20	0.217389	0.163817	3.736372	2.81561	0.753568	4.845637
20.5	0.194392	0.150256	3.341111	2.582532	0.772956	4.266267
21	0.270543	0.195965	4.649952	3.368151	0.724341	5.872701
21.5	0.171176	0.126053	2.94209	2.166533	0.736392	3.844907
22	0.192383	0.146771	3.306589	2.522627	0.762909	4.424277
22.5	0.210075	0.162936	3.610661	2.800455	0.775607	4.977312
23	0.21265	0.154007	3.654927	2.647002	0.724228	4.819302
23.5	0.222716	0.161361	3.827927	2.773386	0.724514	5.003646
24	0.174356	0.130225	2.996748	2.238246	0.746892	3.93708
24.5	0.239472	0.191595	4.115921	3.293043	0.800074	5.425006
25	0.208558	0.148923	3.584598	2.559621	0.714061	4.674459
25.5	0.172189	0.129506	2.959501	2.22589	0.752117	3.950247
26	0.209191	0.156503	3.595464	2.689898	0.748137	4.766632
26.5	0.214115	0.156501	3.680105	2.689862	0.73092	4.845637
27	0.214781	0.156402	3.691548	2.688167	0.728195	4.871972
27.5	0.252222	0.194759	4.33506	3.347414	0.772173	5.727859
28	0.174122	0.130745	2.992725	2.247184	0.750882	3.923912
28.5	0.216987	0.168754	3.729469	2.900455	0.777713	4.977312
29	0.186004	0.147596	3.196942	2.536809	0.793511	4.384774
29.5	0.192819	0.147611	3.314081	2.537064	0.765541	4.397942
30	0.183252	0.138571	3.149645	2.381683	0.756175	4.134592
30.5	0.223242	0.161089	3.836979	2.768717	0.721588	5.056316
31	0.20001	0.154224	3.437673	2.65072	0.77108	4.621789
31.5	0.151124	0.116535	2.597444	2.002944	0.771121	3.502553
32	0.252074	0.196759	4.332526	3.381792	0.780559	5.820031
32.5	0.171427	0.126491	2.946403	2.17407	0.737873	3.818572
33	0.261182	0.197844	4.489069	3.400441	0.757493	5.793696
33.5	0.167909	0.128537	2.885941	2.209233	0.765516	3.818572
34	0.254431	0.204248	4.373038	3.510513	0.802763	5.767361
34.5	0.242367	0.201384	4.165689	3.461292	0.830905	5.609351
35	0.20764	0.165725	3.568816	2.848394	0.798134	4.634956
Mean	0.206643	0.163534	3.55168	2.810748	0.777927	4.855042
SD	0.044494	0.031576	0.764736	0.542714	0.127648	0.830604

Subject Eleven-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.090309	0	1.540152	0	6.66275
1	0.183904	0.26577	3.136353	4.532506	1.445152	7.76882
1.5	0.274726	0.240026	4.685256	4.09346	0.87369	6.741755
2	0.290589	0.236544	4.955784	4.034081	0.814015	6.689085
2.5	0.275751	0.231583	4.702728	3.949481	0.839828	6.478405
3	0.291123	0.25243	4.964889	4.305009	0.867091	7.005105
3.5	0.26834	0.23065	4.576333	3.933563	0.859545	6.504741
4	0.28068	0.238123	4.786788	4.06102	0.848381	7.110445
4.5	0.225233	0.206691	3.841175	3.524955	0.917676	5.925371
5	0.24717	0.226293	4.215303	3.859258	0.915535	6.478405
5.5	0.219223	0.197398	3.738693	3.366475	0.900442	5.635686
6	0.248687	0.222106	4.241166	3.787856	0.893117	6.465238
6.5	0.236056	0.212904	4.025768	3.63092	0.90192	6.18872
7	0.240392	0.219184	4.099703	3.738018	0.911778	6.215055
7.5	0.19824	0.179625	3.380841	3.063375	0.906098	5.135321
8	0.250025	0.220152	4.263988	3.754526	0.88052	6.399401
8.5	0.238417	0.212451	4.066022	3.623195	0.891091	6.175553
9	0.231815	0.200954	3.953433	3.427125	0.866873	6.070213
9.5	0.294227	0.264259	5.017818	4.506734	0.898146	7.834657
10	0.176432	0.157447	3.00891	2.685136	0.892395	4.661292
10.5	0.21996	0.214958	3.751256	3.665953	0.97726	6.162385
11	0.225877	0.209919	3.852174	3.580013	0.929349	6.24139
11.5	0.221667	0.191554	3.780374	3.266806	0.864149	5.820031
12	0.205553	0.182496	3.505548	3.112338	0.887832	5.372336
12.5	0.233433	0.200144	3.98102	3.413309	0.857396	5.925371
13	0.233814	0.197736	3.98753	3.372244	0.845698	5.938539
13.5	0.251706	0.220691	4.292656	3.763728	0.876783	6.478405
14	0.197765	0.173259	3.37274	2.954812	0.876087	5.122154
14.5	0.210229	0.188291	3.585299	3.211165	0.895648	5.504011
15	0.230597	0.204057	3.932657	3.480043	0.884909	5.964873
15.5	0.224675	0.193231	3.831666	3.295417	0.860048	5.688356
16	0.225357	0.208322	3.843291	3.552782	0.924411	5.899035
16.5	0.1905	0.175061	3.24884	2.98554	0.918956	5.095819
17	0.198173	0.179872	3.379691	3.067581	0.907651	5.135321
17.5	0.265948	0.221684	4.535546	3.780661	0.833562	6.610081
18	0.316247	0.278267	5.393365	4.745632	0.879902	7.966332
18.5	0.143974	0.130913	2.455365	2.23263	0.909286	3.805405
19	0.181363	0.17018	3.093019	2.902287	0.938335	4.871972
19.5	0.18496	0.178883	3.154356	3.050722	0.967146	5.372336
20	0.19207	0.179225	3.275614	3.056543	0.933121	5.187991
20.5	0.198464	0.171512	3.384658	2.925016	0.864198	4.950976
21	0.210887	0.178243	3.596527	3.03981	0.845207	5.095819

21.5	0.149551	0.126481	2.550483	2.157046	0.84574	3.581558
22	0.186756	0.15387	3.184989	2.624133	0.823906	4.411109
22.5	0.227882	0.198879	3.886358	3.39173	0.872727	5.425006
23	0.254367	0.201087	4.338036	3.429399	0.790542	5.741026
23.5	0.16324	0.134909	2.783934	2.300768	0.826445	3.77907
24	0.259322	0.222147	4.422547	3.788553	0.856645	6.043878
24.5	0.206092	0.167839	3.514743	2.862375	0.814391	4.871972
25	0.17108	0.140053	2.917641	2.388505	0.818643	4.134592
25.5	0.209352	0.190746	3.570345	3.253033	0.911126	5.293331
26	0.255695	0.20963	4.360683	3.575083	0.819845	6.162385
26.5	0.182505	0.142192	3.112492	2.424986	0.779114	4.358439
27	0.215682	0.181247	3.678295	3.091027	0.840343	5.253829
27.5	0.205683	0.179323	3.507766	3.058226	0.871844	5.029982
28	0.213505	0.183813	3.641169	3.1348	0.860932	5.240661
28.5	0.20421	0.181263	3.482655	3.091309	0.88763	4.950976
29	0.238268	0.205579	4.063488	3.505996	0.862805	5.727859
29.5	0.213115	0.178477	3.634526	3.043793	0.837466	5.187991
30	0.254887	0.205909	4.346902	3.511628	0.807846	6.201888
30.5	0.136538	0.117283	2.328554	2.00018	0.85898	3.423548
31	0.242158	0.220384	4.129834	3.758495	0.910084	6.083381
31.5	0.158311	0.143676	2.699872	2.450289	0.907558	3.950247
32	0.184195	0.167795	3.141316	2.861616	0.910961	4.529617
32.5	0.252496	0.238839	4.30614	4.073215	0.945909	6.373065
33	0.179945	0.163725	3.068821	2.792204	0.909862	4.318937
33.5	0.168193	0.151582	2.868406	2.585118	0.901238	4.029253
34	0.204939	0.18488	3.495088	3.153001	0.902124	5.029982
34.5	0.277917	0.242651	4.739674	4.138233	0.873105	6.636415
35	0.156443	0.126913	2.668019	2.164405	0.811241	3.67373
Mean	0.217237	0.193065	3.704813	3.292586	0.872275	5.597124
SD	0.047068	0.037042	0.80271	0.631717	0.132018	1.019416

Subject Eleven-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.29018	0.236424	5.026739	4.095528	0.814748	6.533259
1	0.332165	0.23841	5.754048	4.129937	0.717745	6.467133
1.5	0.293984	0.202413	5.092634	3.50636	0.688516	5.70007
2	0.281011	0.206781	4.867908	3.58204	0.735848	5.911674
2.5	0.23228	0.171092	4.02374	2.963801	0.736579	5.052034
3	0.226176	0.173843	3.918018	3.011448	0.768615	5.025584
3.5	0.222514	0.166428	3.854576	2.882998	0.747942	4.893332

4	0.208047	0.153152	3.603956	2.65303	0.736144	4.655277
4.5	0.231263	0.178768	4.006131	3.096761	0.773005	5.263638
5	0.213553	0.167442	3.699346	2.900574	0.784077	4.734629
5.5	0.258683	0.190897	4.481131	3.306881	0.737957	5.581043
6	0.214934	0.167687	3.723267	2.904811	0.780178	4.761079
6.5	0.213551	0.170172	3.699302	2.947856	0.796868	4.721404
7	0.222329	0.178036	3.851371	3.084081	0.800775	4.919782
7.5	0.208229	0.154953	3.60711	2.684221	0.744147	4.549476
8	0.213954	0.160572	3.706294	2.781562	0.750497	4.734629
8.5	0.251844	0.193244	4.362647	3.347529	0.767316	5.594268
9	0.244109	0.179764	4.228658	3.114017	0.736408	5.36944
9.5	0.191331	0.146073	3.314394	2.530397	0.763457	4.258521
10	0.207476	0.16647	3.594069	2.883726	0.802357	4.866881
10.5	0.215345	0.16624	3.730392	2.879751	0.77197	4.972683
11	0.217015	0.157324	3.759315	2.725295	0.724944	4.761079
11.5	0.225411	0.16403	3.904764	2.841457	0.72769	4.906557
12	0.218315	0.155348	3.781832	2.691069	0.711578	4.708179
12.5	0.216956	0.160028	3.758296	2.77214	0.737606	4.800755
13	0.2041	0.146191	3.535598	2.532439	0.716269	4.443674
13.5	0.175472	0.128293	3.039673	2.222399	0.731131	3.888215
14	0.235133	0.186229	4.073174	3.226009	0.792013	5.237187
14.5	0.188287	0.14273	3.261658	2.47248	0.758044	4.046917
15	0.171417	0.124156	2.969437	2.150742	0.724293	3.676611
15.5	0.203139	0.154788	3.51895	2.68137	0.76198	4.443674
16	0.199823	0.150224	3.461503	2.602301	0.751783	4.324647
16.5	0.278891	0.203667	4.831179	3.528083	0.730274	6.057151
17	0.172087	0.1229	2.981043	2.128982	0.714173	3.703061
17.5	0.18477	0.143207	3.200744	2.480753	0.775055	4.099818
18	0.189364	0.152024	3.280324	2.633489	0.802813	4.364323
18.5	0.230156	0.174227	3.986958	3.018112	0.756996	5.14461
19	0.17081	0.1222	2.958912	2.116855	0.715417	3.676611
19.5	0.233882	0.173462	4.051497	3.00485	0.741664	5.078485
20	0.199496	0.152273	3.455828	2.637801	0.76329	4.377548
20.5	0.200809	0.15425	3.478575	2.672047	0.768144	4.337872
21	0.203724	0.158427	3.529082	2.744411	0.777656	4.523026
21.5	0.224486	0.174329	3.888737	3.019869	0.776568	5.025584
22	0.175812	0.128623	3.045568	2.228106	0.73159	3.808863
22.5	0.224403	0.167848	3.887303	2.907598	0.747973	4.893332
23	0.198541	0.14926	3.439296	2.585607	0.751784	4.284971
23.5	0.199769	0.147187	3.46057	2.549704	0.736787	4.284971
24	0.196076	0.143189	3.396594	2.480443	0.730274	4.258521
24.5	0.180893	0.142234	3.133581	2.463892	0.786286	3.967566
25	0.219841	0.160363	3.80827	2.777942	0.72945	4.681728

25.5	0.236776	0.17651	4.101634	3.057648	0.745471	5.131385
26	0.170255	0.123772	2.949296	2.144086	0.726982	3.62371
26.5	0.20994	0.16993	3.636755	2.943675	0.809424	4.615602
27	0.240642	0.185128	4.168594	3.20694	0.76931	5.171062
27.5	0.158296	0.111551	2.742136	1.932388	0.704702	3.279855
28	0.2066	0.150263	3.578898	2.602989	0.727316	4.337872
28.5	0.210218	0.149893	3.641566	2.596575	0.713038	4.5098
29	0.19249	0.143241	3.334479	2.481344	0.744147	4.20562
29.5	0.290082	0.212601	5.025048	3.682849	0.732898	6.268754
30	0.180247	0.130814	3.122391	2.266074	0.72575	3.835314
30.5	0.199629	0.155603	3.458133	2.695491	0.779464	4.311421
31	0.196741	0.153935	3.408106	2.666592	0.782426	4.311421
31.5	0.19044	0.144131	3.298955	2.496758	0.756833	4.126269
32	0.17577	0.136328	3.044839	2.361587	0.775603	3.782413
32.5	0.17632	0.135439	3.054358	2.346188	0.768144	3.808863
33	0.183728	0.142575	3.182694	2.469795	0.776008	4.020467
33.5	0.216408	0.159675	3.748801	2.766022	0.737842	4.708179
34	0.187691	0.139463	3.251337	2.415895	0.743047	4.020467
34.5	0.287378	0.227691	4.978206	3.944249	0.792303	6.057151
35	0.17294	0.134111	2.995809	2.323188	0.77548	3.517909
Mean	0.214206	0.161293	3.710658	2.794056	0.753069	4.657356
SD	0.034449	0.026215	0.596748	0.45411	0.028028	0.714026

Subject Twelve-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.376673	0.283042	6.115717	4.595508	0.751426	6.855994
1	0.365253	0.265679	5.930302	4.313614	0.727385	6.197941
1.5	0.3235	0.249751	5.252391	4.054994	0.772028	5.845959
2	0.320877	0.252933	5.209816	4.106667	0.788256	5.861263
2.5	0.302788	0.250077	4.91612	4.060294	0.825914	5.769441
3	0.288514	0.241091	4.684367	3.91439	0.835628	5.662316
3.5	0.430875	0.360172	6.995749	5.847808	0.835909	8.47817
4	0.145862	0.144814	2.368246	2.35122	0.992811	3.565729
4.5	0.24006	0.227494	3.897649	3.693624	0.947655	5.478674
5	0.287816	0.241503	4.673024	3.921088	0.83909	5.769441
5.5	0.278996	0.232944	4.529823	3.782109	0.834935	5.616406
6	0.281661	0.233577	4.57309	3.792398	0.829286	5.67762
6.5	0.246772	0.208911	4.006624	3.391917	0.846577	5.019567
7	0.298015	0.260397	4.838621	4.227845	0.873771	6.381583
7.5	0.178812	0.17316	2.903229	2.811457	0.96839	4.361514

8	0.214954	0.190002	3.490021	3.084898	0.88392	4.575764
8.5	0.268943	0.22148	4.366596	3.595978	0.82352	5.172603
9	0.266363	0.21885	4.32471	3.553278	0.821622	5.264424
9.5	0.265192	0.217264	4.305707	3.527536	0.81927	5.172603
10	0.292657	0.243046	4.751627	3.946129	0.830479	5.708227
10.5	0.259973	0.217621	4.220962	3.533333	0.837092	5.065478
11	0.258887	0.220296	4.203326	3.576758	0.850935	5.20321
11.5	0.259162	0.216691	4.207799	3.518229	0.836121	5.218513
12	0.395737	0.33518	6.425255	5.442029	0.846975	8.156797
12.5	0.147281	0.136145	2.391286	2.210467	0.924384	3.412694
13	0.220082	0.20548	3.573283	3.336203	0.933652	5.065478
13.5	0.260695	0.219607	4.232679	3.56558	0.842393	5.325638
14	0.281212	0.231328	4.565805	3.755881	0.822611	5.616406
14.5	0.253953	0.209307	4.12322	3.398339	0.824195	5.034871
15	0.237412	0.195855	3.854654	3.179928	0.824958	4.744103
15.5	0.245714	0.203533	3.989455	3.304594	0.828332	4.851228
16	0.254334	0.207148	4.129408	3.363294	0.814474	4.943049
16.5	0.258518	0.209691	4.197338	3.404581	0.811128	4.958353
17	0.264289	0.214783	4.291043	3.487254	0.812682	5.096085
17.5	0.240433	0.193303	3.903715	3.138502	0.803978	4.51455
18	0.327882	0.259046	5.323547	4.205909	0.790058	6.167334
18.5	0.203932	0.177754	3.311076	2.886047	0.871634	4.376818
19	0.221862	0.188964	3.602187	3.068049	0.851718	4.529853
19.5	0.270639	0.219943	4.394132	3.571031	0.812682	5.218513
20	0.215788	0.174481	3.503565	2.832905	0.808578	4.177872
20.5	0.250857	0.200804	4.072957	3.260294	0.800474	4.835924
21	0.258189	0.204349	4.191999	3.317844	0.791471	4.881835
21.5	0.260742	0.207102	4.233442	3.362549	0.794283	4.897139
22	0.273799	0.220443	4.445449	3.579155	0.805128	5.218513
22.5	0.259051	0.208841	4.206001	3.390774	0.806175	4.866531
23	0.237978	0.193938	3.863851	3.148816	0.814943	4.591067
23.5	0.242165	0.192818	3.931832	3.13063	0.796227	4.606371
24	0.276877	0.221843	4.495418	3.601871	0.801232	5.233817
24.5	0.259398	0.216073	4.211623	3.508198	0.83298	5.126692
25	0.26678	0.216191	4.331484	3.510109	0.810371	5.004263
25.5	0.24871	0.201962	4.038093	3.27909	0.812039	4.759407
26	0.2474	0.197862	4.016819	3.212527	0.799769	4.652282
26.5	0.318185	0.253958	5.1661	4.123306	0.798147	5.93778
27	0.27845	0.225762	4.520964	3.665515	0.810782	5.24912
27.5	0.248821	0.205129	4.039901	3.330513	0.824405	4.77471
28	0.234522	0.190491	3.807738	3.092844	0.812252	4.499246
28.5	0.268952	0.214032	4.366742	3.475054	0.7958	5.004263
29	0.266683	0.212899	4.329916	3.456661	0.798321	4.98896

29.5	0.242594	0.196572	3.938796	3.19158	0.810293	4.606371
30	0.247932	0.198339	4.02547	3.220262	0.799972	4.606371
30.5	0.277762	0.221133	4.509781	3.590359	0.796127	5.034871
31	0.247635	0.200497	4.020641	3.255295	0.809646	4.545156
31.5	0.284734	0.231801	4.622981	3.763551	0.814096	5.371549
32	0.227171	0.18706	3.688379	3.037143	0.823436	4.315603
32.5	0.274456	0.2232	4.456118	3.623915	0.813245	5.126692
33	0.243239	0.195919	3.949261	3.180976	0.805461	4.591067
33.5	0.260787	0.213401	4.234181	3.464821	0.818298	4.912442
34	0.265351	0.219875	4.308281	3.569934	0.828621	4.973656
34.5	0.234334	0.190679	3.80469	3.095894	0.813705	4.34621
35	0.245975	0.196767	3.993687	3.194741	0.799948	4.636978
Mean	0.264313	0.217316	4.291425	3.52837	0.826201	5.147242
SD	0.045904	0.033967	0.745301	0.551493	0.043501	0.804907

Subject Twelve-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.249154	0.208481	4.030437	3.372482	0.836753	6.372002
1	0.216032	0.163555	3.494634	2.645738	0.757086	4.171045
1.5	0.248256	0.194146	4.015913	3.140592	0.782037	4.725132
2	0.289921	0.216641	4.689898	3.504489	0.747242	5.217654
2.5	0.406128	0.296704	6.569713	4.799631	0.730569	7.40322
3	0.148905	0.129633	2.408757	2.097	0.870574	3.432262
3.5	0.197429	0.173031	3.193708	2.799032	0.876421	4.401915
4	0.229715	0.172415	3.715973	2.789059	0.75056	4.186436
4.5	0.247017	0.188767	3.995862	3.053586	0.764187	4.494262
5	0.212384	0.164614	3.435632	2.662869	0.775074	3.801653
5.5	0.216735	0.168394	3.506002	2.724028	0.776961	3.863219
6	0.268444	0.206428	4.342477	3.339269	0.768978	4.678958
6.5	0.234717	0.180985	3.796893	2.9277	0.771078	4.217219
7	0.240355	0.190265	3.888094	3.077822	0.791602	4.46348
7.5	0.24099	0.190707	3.898374	3.084959	0.791345	4.540436
8	0.283162	0.229916	4.580557	3.719227	0.81196	5.648611
8.5	0.249149	0.205039	4.030351	3.3168	0.822956	5.140697
9	0.204401	0.16472	3.30648	2.664594	0.80587	4.124871
9.5	0.31338	0.262308	5.06939	4.24322	0.837028	6.849133
10	0.150542	0.138785	2.435235	2.245049	0.921902	3.509219
10.5	0.187146	0.15526	3.027356	2.511559	0.829621	3.940176
11	0.266309	0.198246	4.307938	3.206925	0.744422	4.94061
11.5	0.235202	0.174117	3.804744	2.816601	0.740286	4.478871

12	0.251934	0.188699	4.075397	3.052479	0.749002	4.771306
12.5	0.255507	0.191915	4.133208	3.10451	0.751114	4.81748
13	0.243422	0.185841	3.937716	3.006256	0.763452	4.648175
13.5	0.33989	0.257211	5.498215	4.160766	0.756749	6.464351
14	0.144264	0.119225	2.333689	1.928636	0.826432	3.093653
14.5	0.219214	0.18853	3.546117	3.049752	0.860026	4.802088
15	0.216878	0.162945	3.508321	2.635877	0.751321	4.140262
15.5	0.273646	0.203439	4.426634	3.290917	0.743436	5.125306
16	0.238166	0.174999	3.852683	2.830865	0.734778	4.324958
16.5	0.254125	0.187803	4.110839	3.037983	0.739018	4.663567
17	0.25922	0.195541	4.193262	3.163166	0.754345	4.879045
17.5	0.233641	0.178968	3.779494	2.895073	0.765995	4.355741
18	0.254874	0.1989	4.122957	3.217507	0.780388	4.909828
18.5	0.23609	0.181693	3.819098	2.939148	0.769592	4.448089
19	0.231208	0.180638	3.740136	2.922079	0.781276	4.432697
19.5	0.221903	0.172059	3.5896	2.783315	0.775383	4.217219
20	0.23208	0.177439	3.754234	2.870342	0.764561	4.432697
20.5	0.265462	0.2023	4.294236	3.272494	0.762066	5.017567
21	0.254141	0.192429	4.111107	3.112827	0.757175	4.694349
21.5	0.19139	0.14305	3.096019	2.314041	0.747425	3.493827
22	0.243565	0.187913	3.940027	3.039772	0.77151	4.694349
22.5	0.262602	0.198041	4.247967	3.203612	0.754152	4.894436
23	0.236065	0.184388	3.818692	2.982754	0.781093	4.617393
23.5	0.250164	0.198512	4.046768	3.211229	0.793529	4.894436
24	0.19378	0.149538	3.134672	2.418995	0.77169	3.540001
24.5	0.29165	0.228363	4.717861	3.694103	0.783004	5.664002
25	0.225079	0.178119	3.640976	2.881344	0.791366	4.324958
25.5	0.21288	0.166575	3.443653	2.694591	0.78248	4.186436
26	0.275179	0.223632	4.451428	3.617583	0.812679	5.710176
26.5	0.202972	0.158731	3.283369	2.567715	0.782037	3.863219
27	0.233376	0.187854	3.775199	3.038807	0.80494	4.648175
27.5	0.217125	0.17583	3.512311	2.844316	0.809813	4.340349
28	0.180451	0.142784	2.919056	2.309734	0.79126	3.601566
28.5	0.274453	0.20048	4.439673	3.24306	0.730473	5.125306
29	0.242584	0.185874	3.924154	3.006793	0.766227	4.555828
29.5	0.273931	0.215046	4.431237	3.478687	0.785037	5.417741
30	0.205319	0.163728	3.321342	2.648546	0.797432	4.124871
30.5	0.265941	0.212735	4.301993	3.441298	0.799931	5.263828
31	0.246614	0.200738	3.989347	3.247228	0.813975	5.202263
31.5	0.306671	0.248352	4.960856	4.017463	0.809833	6.325829
32	0.35347	0.297773	5.717903	4.816913	0.842426	7.40322
32.5	0.262302	0.237106	4.243122	3.835544	0.903944	6.002611
33	0.225245	0.200835	3.643663	3.248799	0.89163	5.140697

33.5	0.243246	0.208738	3.934859	3.376641	0.858135	5.356176
34	0.309203	0.263425	5.001813	4.261288	0.851949	6.818351
34.5	0.211059	0.198556	3.414188	3.211931	0.94076	5.263828
35	0.208023	0.182997	3.365077	2.960248	0.879697	4.832871
Mean	0.242935	0.192192	3.929837	3.108989	0.793415	4.802089
SD	0.043569	0.033643	0.704799	0.54422	0.04728	0.892619

Subject Twelve-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.373709	0.282056	6.181657	4.665581	0.754746	7.059033
1	0.364545	0.261857	6.030072	4.331465	0.718311	6.399167
1.5	0.320665	0.242211	5.304235	4.006506	0.755341	5.954141
2	0.35053	0.276398	5.798245	4.572001	0.788515	6.859538
2.5	0.228568	0.203885	3.780822	3.372541	0.892013	5.248238
3	0.264886	0.225614	4.381567	3.731967	0.851742	5.585844
3.5	0.285686	0.24239	4.72564	4.009462	0.848448	5.92345
4	0.2381	0.204713	3.938499	3.38623	0.859777	5.002706
4.5	0.215344	0.1882	3.562083	3.11309	0.873952	4.588372
5	0.317372	0.280391	5.249756	4.638045	0.883478	6.966959
5.5	0.210362	0.201302	3.479665	3.329814	0.956935	5.156164
6	0.234595	0.209432	3.880514	3.464292	0.892741	5.324966
6.5	0.242426	0.21435	4.010048	3.54564	0.884189	5.524461
7	0.225333	0.198291	3.727313	3.280001	0.879991	4.956669
7.5	0.338775	0.292086	5.603796	4.831506	0.862185	7.381293
8	0.123815	0.112785	2.048072	1.865618	0.910915	2.97707
8.5	0.211253	0.196036	3.494406	3.242695	0.927967	5.30962
9	0.250364	0.207293	4.141358	3.428915	0.827969	5.30962
9.5	0.254853	0.213811	4.215607	3.536726	0.83896	5.463078
10	0.25377	0.214601	4.197694	3.54979	0.845652	5.463078
10.5	0.332317	0.281678	5.49697	4.659338	0.847619	7.197145
11	0.17521	0.155144	2.898205	2.566289	0.885475	3.959197
11.5	0.205537	0.189961	3.399862	3.142205	0.924216	5.033398
12	0.207107	0.172119	3.425833	2.84708	0.831062	4.419569
12.5	0.245961	0.197952	4.068521	3.274389	0.80481	5.064089
13	0.249176	0.198557	4.121703	3.284408	0.796857	4.98736
13.5	0.343394	0.281138	5.680208	4.650401	0.818703	7.227836
14	0.169467	0.145279	2.803219	2.403116	0.85727	3.80574
14.5	0.162978	0.150386	2.695878	2.487592	0.922739	3.989888
15	0.218166	0.178998	3.608758	2.960867	0.820467	4.619063
15.5	0.23685	0.184715	3.917813	3.055431	0.779882	4.772521

16	0.217421	0.170041	3.596438	2.812713	0.782083	4.281457
16.5	0.237019	0.183557	3.920618	3.036285	0.77444	4.588372
17	0.254853	0.198487	4.215621	3.28325	0.778829	4.925978
17.5	0.220198	0.173342	3.64237	2.867319	0.787212	4.296803
18	0.225278	0.178487	3.726407	2.952412	0.792295	4.434914
18.5	0.233003	0.183314	3.854182	3.032262	0.786746	4.511643
19	0.214423	0.165541	3.54684	2.738269	0.772031	4.035925
19.5	0.246259	0.189014	4.073455	3.126549	0.767542	4.619063
20	0.225746	0.170868	3.734143	2.826388	0.756904	4.112654
20.5	0.244352	0.185747	4.041905	3.072511	0.760164	4.465606
21	0.219147	0.167466	3.624986	2.770118	0.764173	4.097308
21.5	0.232823	0.178749	3.851203	2.956748	0.767747	4.388877
22	0.218771	0.168848	3.61876	2.79298	0.771806	4.097308
22.5	0.255061	0.197031	4.219049	3.259166	0.772488	4.849249
23	0.221342	0.174571	3.661295	2.887644	0.788695	4.266111
23.5	0.214222	0.166408	3.543517	2.75261	0.776802	4.066617
24	0.213759	0.166752	3.53586	2.758309	0.780096	4.143345
24.5	0.222627	0.173738	3.682558	2.873868	0.7804	4.250765
25	0.231043	0.177469	3.82176	2.935571	0.76812	4.281457
25.5	0.201737	0.153486	3.336997	2.538872	0.760825	3.759703
26	0.360423	0.279667	5.961877	4.626069	0.775942	6.874885
26.5	0.193732	0.167752	3.204595	2.774844	0.865895	4.296803
27	0.2381	0.201901	3.9385	3.339723	0.847968	5.171509
27.5	0.244978	0.195076	4.05226	3.226827	0.796303	4.864594
28	0.264798	0.218369	4.380117	3.612119	0.824663	5.432386
28.5	0.209692	0.176792	3.468595	2.924376	0.843101	4.511643
29	0.295725	0.24502	4.891687	4.052967	0.828542	6.307093
29.5	0.232433	0.210496	3.844749	3.481882	0.90562	5.156164
30	0.213689	0.185176	3.534701	3.063056	0.866567	4.634409
30.5	0.219905	0.186652	3.637525	3.087481	0.848786	4.711137
31	0.268691	0.217811	4.44451	3.602885	0.810637	5.524461
31.5	0.188211	0.155907	3.113261	2.578912	0.828364	3.959197
32	0.225868	0.187425	3.736155	3.100267	0.829802	4.818557
32.5	0.230914	0.182153	3.819624	3.013062	0.788837	4.542335
33	0.226472	0.179138	3.746151	2.96319	0.790996	4.526989
33.5	0.337428	0.265117	5.581515	4.385401	0.785701	6.936267
34	0.171651	0.151312	2.83934	2.5029	0.881508	3.943851
34.5	0.229974	0.204823	3.804077	3.388056	0.890638	5.278929
35	0.203215	0.185496	3.361454	3.068357	0.912807	4.757174
Mean	0.24223	0.198895	4.00681	3.289989	0.825071	5.003583
SD	0.050101	0.038237	0.828737	0.632486	0.053672	0.966436

Subject Twelve-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.277586	0.225405	4.591655	3.728509	0.812019	6.687654
1	0.435893	0.313229	7.21026	5.181238	0.718592	7.728297
1.5	0.423693	0.331155	7.008461	5.477753	0.781591	8.631207
2	0.223118	0.198697	3.690677	3.28671	0.890544	5.402156
2.5	0.359668	0.296959	5.94939	4.912097	0.825647	7.559958
3	0.305861	0.258309	5.059347	4.272776	0.844531	6.335672
3.5	0.2753	0.239185	4.553842	3.956445	0.868815	5.922477
4	0.363613	0.323776	6.014645	5.355701	0.890444	8.723028
4.5	0.157983	0.161096	2.613257	2.664753	1.019706	4.177872
5	0.241677	0.224989	3.997664	3.72162	0.930949	5.692924
5.5	0.270747	0.22209	4.478522	3.673662	0.820285	5.89187
6	0.260388	0.21286	4.307167	3.520991	0.817473	5.647013
6.5	0.267727	0.21846	4.428567	3.613621	0.81598	5.708227
7	0.295953	0.245211	4.895456	4.056118	0.828547	6.488708
7.5	0.23266	0.205393	3.848511	3.397485	0.882805	5.555192
8	0.196299	0.188985	3.247059	3.126061	0.962736	5.111389
8.5	0.243599	0.204989	4.029462	3.390797	0.841501	5.356245
9	0.259832	0.218398	4.297976	3.612606	0.840537	5.601102
9.5	0.344537	0.287028	5.699101	4.747831	0.833084	7.253886
10	0.316709	0.277385	5.238796	4.588317	0.875834	7.284494
10.5	0.155093	0.15872	2.565442	2.625439	1.023387	4.407425
11	0.223231	0.206932	3.692549	3.422935	0.926984	5.448067
11.5	0.244404	0.205188	4.042772	3.394091	0.839545	5.402156
12	0.222809	0.181356	3.68556	2.999876	0.813954	4.77471
12.5	0.439539	0.379925	7.270564	6.284476	0.864373	10.45233
13	0.222376	0.278873	3.678408	4.612936	1.254058	7.682386
13.5	0.078371	0.096001	1.296362	1.587984	1.224954	2.616909
14	0.23023	0.206822	3.808312	3.421111	0.898327	5.601102
14.5	0.230387	0.18234	3.810921	3.016149	0.791449	4.728799
15	0.253966	0.187643	4.200935	3.103862	0.73885	4.927746
15.5	0.260973	0.192261	4.316844	3.180258	0.736709	5.126692
16	0.310628	0.24126	5.138211	3.990772	0.776685	6.458102
16.5	0.192092	0.166957	3.17747	2.761692	0.869148	4.545156
17	0.20086	0.157252	3.322498	2.601167	0.782895	4.193175
17.5	0.238746	0.177001	3.949187	2.927838	0.741377	4.744103
18	0.250762	0.185521	4.147936	3.068774	0.739832	4.805317
18.5	0.263045	0.198127	4.351125	3.27729	0.753205	5.310335
19	0.416886	0.314831	6.895855	5.207724	0.755196	8.309833
19.5	0.17826	0.146741	2.94866	2.427299	0.823187	3.948318

20	0.162791	0.145507	2.692776	2.406886	0.893831	3.672854
20.5	0.198523	0.175116	3.283841	2.896658	0.882094	4.330907
21	0.257055	0.201939	4.25204	3.340345	0.785586	5.172603
21.5	0.255388	0.188726	4.224468	3.121788	0.738978	5.019567
22	0.256876	0.192835	4.249069	3.189752	0.750694	5.141996
22.5	0.265391	0.197871	4.38993	3.273055	0.745582	5.157299
23	0.269613	0.204	4.45976	3.374444	0.756643	5.432763
23.5	0.285026	0.224097	4.714716	3.706873	0.786234	5.922477
24	0.207549	0.179856	3.433137	2.975061	0.866572	4.820621
24.5	0.233534	0.18333	3.862976	3.032522	0.785022	4.851228
25	0.224893	0.173488	3.720028	2.869734	0.771428	4.499246
25.5	0.248643	0.189254	4.112885	3.130519	0.761149	4.98896
26	0.37385	0.283483	6.183986	4.689188	0.758279	7.361012
26.5	0.157946	0.134369	2.612644	2.222641	0.850725	3.519819
27	0.237745	0.198213	3.932627	3.278711	0.83372	5.218513
27.5	0.295593	0.230019	4.889514	3.80483	0.778161	5.89187
28	0.283521	0.225828	4.689813	3.735497	0.796513	5.953084
28.5	0.288043	0.245005	4.764616	4.052721	0.850587	6.549922
29	0.152347	0.153425	2.520024	2.53786	1.007078	3.978925
29.5	0.226837	0.201899	3.752197	3.339676	0.890059	5.24912
30	0.212258	0.167414	3.511031	2.76925	0.788728	4.330907
30.5	0.264952	0.20621	4.382661	3.410986	0.778291	5.295031
31	0.30361	0.242294	5.022119	4.007865	0.798043	6.519316
31.5	0.184901	0.166001	3.058511	2.745888	0.897786	4.483943
32	0.226776	0.183548	3.75118	3.036129	0.80938	4.881835
32.5	0.255234	0.197133	4.221914	3.26085	0.772363	5.080781
33	0.302427	0.234862	5.002547	3.884932	0.776591	6.121423
33.5	0.257259	0.207484	4.255412	3.432068	0.806518	5.340942
34	0.227362	0.187768	3.76087	3.10594	0.825857	4.912442
34.5	0.332441	0.264623	5.499018	4.37722	0.796	6.687654
35	0.177307	0.142391	2.932901	2.355333	0.803073	3.688157
Mean	0.257017	0.212076	4.251409	3.508028	0.837104	5.575961
SD	0.067919	0.050937	1.123476	0.842564	0.09665	1.343056

Subject Thirteen-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.038844	0.192544	0.652343	3.233555	4.956836	8.638885
1	0.262461	0.263493	4.407746	4.425067	1.00393	7.181565
1.5	0.348761	0.292491	5.857058	4.912061	0.838657	7.982434
2	0.29829	0.255399	5.009449	4.289144	0.856211	7.207824

2.5	0.298749	0.272886	5.017156	4.58282	0.91343	7.732984
3	0.242474	0.226934	4.072078	3.811099	0.93591	6.538244
3.5	0.203618	0.190334	3.419533	3.196452	0.934763	5.697988
4	0.223268	0.215558	3.749534	3.620058	0.965469	6.538244
4.5	0.257284	0.244186	4.320803	4.100825	0.949089	7.24721
5	0.255086	0.234347	4.283894	3.935596	0.918696	6.945244
5.5	0.228315	0.217808	3.834298	3.657836	0.953978	6.32818
6	0.223312	0.21374	3.750272	3.58953	0.957139	6.236277
6.5	0.226258	0.211648	3.799753	3.554391	0.935427	6.354438
7	0.239732	0.22805	4.026039	3.82985	0.95127	6.827083
7.5	0.210454	0.199988	3.534337	3.358573	0.95027	6.013084
8	0.220838	0.208616	3.708729	3.503483	0.944659	6.236277
8.5	0.205722	0.193639	3.45488	3.251956	0.941264	5.908052
9	0.185689	0.165962	3.118445	2.787149	0.893762	5.185957
9.5	0.174305	0.164182	2.927257	2.757256	0.941925	4.936506
10	0.199328	0.177747	3.347487	2.985072	0.891735	5.487924
10.5	0.214126	0.186168	3.596003	3.126481	0.869432	5.67173
11	0.232303	0.198228	3.901269	3.329024	0.853318	5.93431
11.5	0.254677	0.214692	4.277019	3.605519	0.842998	6.511986
12	0.214572	0.189371	3.603501	3.180277	0.882552	5.855536
12.5	0.187951	0.167292	3.156429	2.809482	0.890082	5.172828
13	0.248325	0.222331	4.170348	3.7338	0.895321	7.010888
13.5	0.224343	0.209327	3.7676	3.515423	0.933067	6.275664
14	0.21462	0.1981	3.604299	3.326878	0.92303	5.829278
14.5	0.223655	0.197227	3.756043	3.312216	0.881836	6.144374
15	0.222034	0.206585	3.728823	3.469364	0.930418	6.406954
15.5	0.188338	0.171942	3.162925	2.887573	0.912944	5.356634
16	0.187561	0.171936	3.149872	2.887467	0.916693	5.514182
16.5	0.212804	0.195481	3.573808	3.282894	0.918598	6.32818
17	0.223786	0.203798	3.758233	3.422563	0.910684	6.406954
17.5	0.218825	0.19668	3.674923	3.303027	0.898802	6.118116
18	0.212597	0.193	3.57033	3.24123	0.907824	6.170632
18.5	0.169131	0.153543	2.840364	2.57858	0.907835	4.962763
19	0.201299	0.180152	3.380596	3.025458	0.894948	5.868665
19.5	0.201011	0.176291	3.375761	2.960619	0.877023	5.816149
20	0.238695	0.214796	4.008616	3.607253	0.899875	6.72205
20.5	0.227416	0.207282	3.819192	3.481077	0.91147	6.039342
21	0.224945	0.19165	3.777695	3.218549	0.851987	5.67173
21.5	0.20909	0.182522	3.511428	3.065248	0.872935	5.487924
22	0.202683	0.169495	3.403839	2.846487	0.836258	5.225344
22.5	0.211566	0.17438	3.553011	2.928521	0.824236	5.566698
23	0.219018	0.19305	3.678169	3.24206	0.881433	5.855536
23.5	0.233093	0.208426	3.914538	3.50029	0.894177	5.80302

24	0.241116	0.19216	4.04927	3.227113	0.796962	5.80302
24.5	0.249368	0.198485	4.187861	3.333329	0.79595	6.249406
25	0.191797	0.156677	3.221025	2.631216	0.816888	4.844603
25.5	0.243799	0.227222	4.094343	3.815943	0.932004	6.275664
26	0.257014	0.210716	4.316266	3.538736	0.81986	6.104987
26.5	0.248538	0.194496	4.173923	3.266341	0.782559	5.908052
27	0.216139	0.167615	3.629809	2.814906	0.775497	5.40915
27.5	0.204967	0.169525	3.442194	2.846991	0.827086	5.487924
28	0.186319	0.158752	3.129024	2.666059	0.852042	5.067796
28.5	0.180182	0.152983	3.025962	2.569185	0.849047	4.831474
29	0.221075	0.180694	3.712703	3.034552	0.817343	5.750504
29.5	0.210789	0.170267	3.539969	2.859452	0.807762	5.435408
30	0.189552	0.151582	3.183313	2.545656	0.799688	4.831474
30.5	0.232487	0.189715	3.904362	3.18606	0.816026	6.0656
31	0.182835	0.164771	3.070503	2.76714	0.901201	4.975893
31.5	0.195191	0.161885	3.278013	2.718676	0.829367	4.975893
32	0.196708	0.153468	3.303501	2.577325	0.78018	4.975893
32.5	0.206748	0.171424	3.47211	2.878878	0.829144	5.356634
33	0.217272	0.175016	3.648845	2.939204	0.805516	5.527311
33.5	0.240135	0.200841	4.032804	3.372905	0.836367	6.091858
34	0.236685	0.195647	3.974859	3.285675	0.826614	5.93431
34.5	0.232225	0.195905	3.899967	3.290015	0.843601	5.881794
35	0.194806	0.161797	3.271546	2.7172	0.830555	4.857732
Mean	0.2191	0.194928	3.679541	3.273596	0.937506	5.965632
SD	0.036994	0.028864	0.621272	0.484732	0.490296	0.764731

Subject Thirteen-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.03892	0.155491	0.648659	2.591523	3.995201	8.096655
1	0.261043	0.264964	4.350711	4.416069	1.015022	7.885667
1.5	0.299	0.245513	4.983341	4.091879	0.821112	7.173584
2	0.28562	0.231609	4.760334	3.860157	0.810901	6.962595
2.5	0.307894	0.261312	5.131567	4.355206	0.848709	7.83292
3	0.272275	0.228335	4.537919	3.805583	0.838619	7.068089
3.5	0.270285	0.236295	4.504757	3.938242	0.874241	7.358198
4	0.255725	0.2215	4.262083	3.691661	0.866164	6.949409
4.5	0.222875	0.194307	3.714586	3.238455	0.871821	6.105458
5	0.212179	0.187598	3.53631	3.126633	0.884151	5.868096
5.5	0.23811	0.201808	3.968507	3.36346	0.847538	6.487873
6	0.252052	0.210557	4.200874	3.509282	0.83537	6.646113

6.5	0.249641	0.215545	4.160684	3.592411	0.863418	6.712048
7	0.198184	0.169471	3.303072	2.824509	0.855116	5.301067
7.5	0.204233	0.173095	3.403882	2.884919	0.847538	5.564802
8	0.215987	0.183476	3.599778	3.057938	0.84948	5.907657
8.5	0.229494	0.186259	3.824907	3.10431	0.811604	5.960404
9	0.202253	0.164686	3.370891	2.744764	0.814255	5.221947
9.5	0.255676	0.209626	4.261271	3.493767	0.819888	6.566994
10	0.238561	0.199735	3.976023	3.328912	0.837246	6.092271
10.5	0.256132	0.210557	4.268873	3.509282	0.822063	6.646113
11	0.225773	0.196195	3.762878	3.269918	0.868994	6.118645
11.5	0.246356	0.214175	4.105934	3.56958	0.869371	6.791168
12	0.234178	0.203778	3.90296	3.396295	0.870184	6.50106
12.5	0.231866	0.205544	3.864426	3.425735	0.886479	6.527433
13	0.204295	0.179619	3.404914	2.993647	0.879214	5.643922
13.5	0.195457	0.172434	3.257609	2.873892	0.882209	5.459308
14	0.172922	0.146849	2.88203	2.447484	0.849222	4.879091
14.5	0.177475	0.152466	2.957918	2.541108	0.859087	5.090079
15	0.185576	0.153463	3.092934	2.557713	0.826954	5.050519
15.5	0.236166	0.18672	3.9361	3.111995	0.790629	6.145018
16	0.224215	0.182568	3.736922	3.042806	0.814255	5.788976
16.5	0.209951	0.174049	3.499175	2.900825	0.829002	5.301067
17	0.222909	0.180493	3.715154	3.008218	0.809715	5.749416
17.5	0.233997	0.197797	3.899945	3.296612	0.845297	6.329632
18	0.194427	0.16319	3.240444	2.719826	0.839337	5.182387
18.5	0.258666	0.214157	4.311105	3.56928	0.827927	6.69886
19	0.218999	0.193358	3.649984	3.222627	0.882915	5.854909
19.5	0.233136	0.194504	3.885594	3.241729	0.834294	6.065898
20	0.200337	0.169338	3.338955	2.822306	0.845266	5.512055
20.5	0.202905	0.171905	3.381758	2.865087	0.847218	5.604362
21	0.194474	0.16079	3.241231	2.67983	0.826794	5.1692
21.5	0.204455	0.164383	3.407587	2.739714	0.804004	5.301067
22	0.211886	0.17285	3.531431	2.880834	0.81577	5.472495
22.5	0.245389	0.198975	4.089824	3.316254	0.810855	6.290072
23	0.217464	0.179282	3.624407	2.988028	0.824418	5.591175
23.5	0.217358	0.18073	3.622638	3.012171	0.831486	5.670296
24	0.225349	0.188612	3.755824	3.14354	0.836977	5.736229
24.5	0.201975	0.164369	3.366247	2.739485	0.81381	5.050519
25	0.220906	0.180839	3.681772	3.01399	0.818625	5.564802
25.5	0.232255	0.18351	3.870911	3.058501	0.790124	5.723042
26	0.179746	0.142062	2.995764	2.367707	0.790352	4.457116
26.5	0.272356	0.217576	4.539267	3.626273	0.798868	6.962595
27	0.205942	0.184017	3.432371	3.066942	0.893535	5.20876
27.5	0.254676	0.196516	4.244603	3.27527	0.771632	5.81535

28	0.212477	0.167487	3.541291	2.791457	0.78826	5.1692
28.5	0.200198	0.161329	3.336641	2.688823	0.805847	5.076892
29	0.218129	0.173869	3.635484	2.897824	0.797095	5.538428
29.5	0.181491	0.154409	3.02485	2.57348	0.850779	4.575797
30	0.244073	0.188726	4.067876	3.145426	0.773235	5.657109
30.5	0.231375	0.182712	3.856248	3.045197	0.789679	5.630735
31	0.207179	0.167192	3.452982	2.786529	0.806992	5.221947
31.5	0.180897	0.140351	3.014954	2.339188	0.775862	4.457116
32	0.185774	0.144755	3.096231	2.412584	0.7792	4.668104
32.5	0.200772	0.158061	3.346204	2.634353	0.787266	5.1692
33	0.212448	0.171454	3.540804	2.857574	0.807041	5.512055
33.5	0.266584	0.212864	4.443069	3.54774	0.798489	6.54062
34	0.229195	0.175098	3.819921	2.918303	0.763969	5.380188
34.5	0.210137	0.161534	3.502278	2.692233	0.768709	5.1692
35	0.173686	0.143311	2.894765	2.388513	0.825115	4.509863
Mean	0.221634	0.186029	3.693903	3.100477	0.876169	5.871299
SD	0.037008	0.027304	0.616793	0.455069	0.380228	0.823439

Subject Thirteen-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.184151	0.120763	3.069192	2.012721	0.655782	8.770176
1	0.179034	0.23931	2.983892	3.988505	1.336679	8.58637
1.5	0.271791	0.254889	4.529846	4.248156	0.937815	7.614822
2	0.36127	0.327315	6.021169	5.455253	0.906012	9.557916
2.5	0.299897	0.285004	4.998281	4.750062	0.950339	8.31066
3	0.227086	0.22545	3.784767	3.757493	0.992794	6.813953
3.5	0.190659	0.194279	3.177645	3.237984	1.018989	6.039342
4	0.216519	0.219819	3.608643	3.663657	1.015245	6.905856
4.5	0.222269	0.213827	3.704492	3.563781	0.962016	6.748308
5	0.247129	0.227421	4.118809	3.790357	0.920256	7.299726
5.5	0.251384	0.232485	4.189725	3.874748	0.924821	7.325985
6	0.244864	0.230795	4.081063	3.846587	0.942545	7.037147
6.5	0.253351	0.237715	4.222524	3.961911	0.93828	7.3785
7	0.224014	0.217737	3.73357	3.628953	0.971979	6.892728
7.5	0.232899	0.230547	3.881655	3.842444	0.989898	7.220953
8	0.209651	0.206749	3.49419	3.445819	0.986157	6.446341
8.5	0.191134	0.188476	3.185561	3.141273	0.986097	5.921181
9	0.206312	0.196729	3.438539	3.27882	0.95355	6.275664
9.5	0.219527	0.215099	3.658781	3.584985	0.979831	6.617018
10	0.247515	0.230056	4.12525	3.834262	0.929462	7.194695
10.5	0.22547	0.205878	3.75783	3.431294	0.913105	6.577631

11	0.198487	0.186113	3.308117	3.101881	0.937657	6.039342
11.5	0.202301	0.189373	3.371689	3.156216	0.936093	6.223148
12	0.214802	0.197188	3.580031	3.28647	0.918	6.45947
12.5	0.199024	0.19176	3.317059	3.196001	0.963504	5.93431
13	0.233675	0.210328	3.894586	3.50547	0.900088	6.538244
13.5	0.242342	0.212324	4.039041	3.538734	0.876132	6.630147
14	0.234662	0.210073	3.911031	3.501221	0.895217	6.72205
14.5	0.17191	0.154374	2.865166	2.572903	0.897994	4.962763
15	0.200676	0.178069	3.344598	2.967816	0.887346	5.842407
15.5	0.172304	0.156012	2.871736	2.600208	0.905448	5.054667
16	0.218113	0.188498	3.63521	3.141631	0.864223	6.013084
16.5	0.239412	0.198892	3.990196	3.314863	0.830752	6.354438
17	0.229297	0.189072	3.82162	3.151207	0.824574	6.223148
17.5	0.19608	0.168575	3.267997	2.80959	0.859728	5.592956
18	0.226389	0.192647	3.773144	3.210777	0.850955	6.538244
18.5	0.217568	0.20275	3.626137	3.379173	0.931893	6.538244
19	0.208466	0.190449	3.474432	3.174143	0.913572	5.789891
19.5	0.207936	0.173569	3.465603	2.892814	0.834722	5.579827
20	0.203573	0.170724	3.392884	2.845394	0.838636	5.619214
20.5	0.201908	0.171521	3.36514	2.85869	0.849501	5.645472
21	0.198298	0.167795	3.304971	2.796586	0.846176	5.54044
21.5	0.216915	0.180553	3.615248	3.009214	0.832367	5.999955
22	0.214693	0.183779	3.578209	3.06298	0.856009	5.908052
22.5	0.228433	0.195631	3.807211	3.260522	0.856407	6.118116
23	0.252736	0.217267	4.212262	3.621123	0.859662	6.984631
23.5	0.236924	0.226214	3.948729	3.770228	0.954795	6.827083
24	0.204608	0.181906	3.410132	3.03176	0.889045	5.67173
24.5	0.204263	0.181455	3.404377	3.024244	0.88834	5.842407
25	0.183443	0.164222	3.057379	2.737042	0.895225	5.448537
25.5	0.184942	0.16368	3.082366	2.728002	0.885035	5.501053
26	0.205858	0.176824	3.430967	2.947072	0.858963	5.829278
26.5	0.230523	0.19426	3.842044	3.237664	0.842693	6.19689
27	0.181733	0.149061	3.02889	2.484349	0.820218	4.844603
27.5	0.23478	0.196194	3.913	3.269895	0.835649	6.498857
28	0.217256	0.196959	3.620937	3.282647	0.906574	5.711117
28.5	0.241388	0.195775	4.023141	3.262914	0.811036	5.960568
29	0.185669	0.156042	3.094482	2.600695	0.84043	4.778958
29.5	0.245918	0.197557	4.098634	3.292611	0.803344	6.380696
30	0.221991	0.182534	3.699847	3.042232	0.822259	5.960568
30.5	0.202544	0.166403	3.375739	2.773385	0.821564	5.382892
31	0.186567	0.157219	3.109451	2.620312	0.842693	5.01528
31.5	0.176998	0.143405	2.949967	2.390092	0.81021	4.660797
32	0.223003	0.181157	3.716712	3.019278	0.812352	5.93431

32.5	0.209373	0.173775	3.489546	2.89625	0.829979	5.501053
33	0.225144	0.182763	3.752392	3.046058	0.811764	5.776762
33.5	0.208811	0.169102	3.480179	2.818367	0.809834	5.461666
34	0.218421	0.183493	3.640345	3.058224	0.840092	5.908052
34.5	0.203591	0.170975	3.393189	2.849585	0.839795	5.487924
35	0.22181	0.186564	3.696835	3.109396	0.841097	5.960568
Mean	0.21845	0.195075	3.640829	3.251243	0.892733	6.270413
SD	0.029607	0.032026	0.493448	0.533773	0.083764	0.915775

Subject Thirteen-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.044018	0.177828	0.72269	2.919558	4.039849	9.138186
1	0.33231	0.31205	5.455839	5.123211	0.939033	8.844268
1.5	0.366814	0.303669	6.022317	4.985617	0.827857	8.75075
2	0.326643	0.286785	5.362789	4.708418	0.877979	8.55035
2.5	0.287088	0.267383	4.713382	4.389862	0.931361	8.136192
3	0.257782	0.248484	4.232248	4.079585	0.963929	7.708675
3.5	0.231525	0.220822	3.801157	3.625437	0.953772	6.933799
4	0.236562	0.226952	3.883849	3.726077	0.959377	7.281157
4.5	0.220502	0.211544	3.620175	3.473114	0.959377	6.78684
5	0.252288	0.233305	4.142039	3.830374	0.924756	7.508276
5.5	0.23424	0.217037	3.845726	3.56329	0.926558	6.973879
6	0.24014	0.226247	3.942601	3.714508	0.942147	7.281157
6.5	0.240389	0.227368	3.946685	3.732914	0.945835	7.294518
7	0.238706	0.221336	3.919054	3.633869	0.927231	7.134198
7.5	0.197419	0.181841	3.241204	2.985442	0.921091	6.118845
8	0.203084	0.197795	3.334212	3.247386	0.973959	6.466202
8.5	0.231173	0.211555	3.795373	3.473291	0.915138	6.84028
9	0.220883	0.200429	3.626433	3.290618	0.907398	6.573081
9.5	0.258209	0.230325	4.239254	3.781457	0.89201	7.601795
10	0.22774	0.208576	3.73902	3.424383	0.915851	6.84028
10.5	0.199108	0.189781	3.26894	3.115811	0.953156	6.386043
11	0.201005	0.19009	3.300074	3.120884	0.945701	6.386043
11.5	0.226313	0.210206	3.715581	3.451137	0.928828	6.89372
12	0.198172	0.178086	3.25357	2.923805	0.898645	5.758126
12.5	0.208809	0.189474	3.428207	3.11077	0.907404	6.145564
13	0.244922	0.225473	4.021104	3.701797	0.920592	6.973879
13.5	0.245939	0.217048	4.03781	3.563473	0.882526	6.920439
14	0.227899	0.21236	3.741621	3.486504	0.931817	6.920439
14.5	0.21753	0.211052	3.57139	3.465037	0.970221	6.867
15	0.187698	0.175774	3.081602	2.885838	0.936473	5.905086

15.5	0.212578	0.198012	3.490085	3.250941	0.931479	6.706681
16	0.208861	0.190149	3.429062	3.121856	0.910411	6.265804
16.5	0.222481	0.193751	3.652675	3.180995	0.870867	6.519642
17	0.206519	0.178491	3.39061	2.930457	0.864286	6.065405
17.5	0.24222	0.209676	3.976745	3.442445	0.865644	6.987239
18	0.233924	0.204893	3.840541	3.363917	0.875897	6.666601
18.5	0.213921	0.187324	3.51214	3.075462	0.875666	6.252443
19	0.21669	0.19364	3.557605	3.179161	0.893624	6.452842
19.5	0.218634	0.195918	3.589515	3.216564	0.8961	6.466202
20	0.261228	0.230398	4.288812	3.782655	0.881982	7.508276
20.5	0.216146	0.195241	3.548668	3.205446	0.903281	6.332603
21	0.232302	0.208007	3.813906	3.415033	0.895416	6.920439
21.5	0.200228	0.181685	3.287324	2.982893	0.907392	6.025325
22	0.214842	0.196129	3.527256	3.220035	0.912901	6.546362
22.5	0.203343	0.189622	3.338465	3.113197	0.932523	6.199004
23	0.22606	0.199253	3.711435	3.27131	0.881414	6.639881
23.5	0.189379	0.168258	3.109206	2.762444	0.888473	5.571087
24	0.223063	0.195329	3.662232	3.206892	0.875666	6.519642
24.5	0.240402	0.211616	3.946893	3.474287	0.880259	6.90708
25	0.195429	0.17231	3.208541	2.828974	0.881701	5.677967
25.5	0.211912	0.189922	3.479159	3.118122	0.896229	6.199004
26	0.204976	0.178052	3.365273	2.923239	0.868648	5.811566
26.5	0.18871	0.162229	3.098217	2.663462	0.859676	5.397409
27	0.264193	0.223786	4.337502	3.674096	0.847054	7.481556
27.5	0.198082	0.170429	3.252096	2.798091	0.860396	5.450849
28	0.190435	0.158691	3.126544	2.605379	0.83331	5.357328
28.5	0.232958	0.210973	3.824676	3.46374	0.90563	6.85364
29	0.249087	0.207924	4.089486	3.41367	0.834743	6.479562
29.5	0.230874	0.193593	3.790469	3.178396	0.838523	6.279163
30	0.211161	0.182266	3.466826	2.992426	0.86316	5.958525
30.5	0.208463	0.18172	3.422521	2.983461	0.871715	6.065405
31	0.188129	0.160127	3.088681	2.628943	0.851154	5.370688
31.5	0.191248	0.160906	3.13989	2.641743	0.841349	5.370688
32	0.231867	0.192994	3.806764	3.168562	0.832351	6.319243
32.5	0.216319	0.180009	3.551509	2.955369	0.832145	5.998605
33	0.20004	0.168904	3.28424	2.77305	0.844351	5.504288
33.5	0.244347	0.199614	4.011661	3.277242	0.816929	6.546362
34	0.214267	0.178037	3.517822	2.922992	0.83091	5.624527
34.5	0.206188	0.164913	3.385173	2.707524	0.799818	5.357328
35	0.240402	0.198484	3.946903	3.258686	0.825631	6.519642
Mean	0.224383	0.202485	3.683901	3.32438	0.938551	6.615642
SD	0.039088	0.030252	0.641739	0.49668	0.378387	0.832332

Subject Fourteen-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.192407	0.218376	3.469627	3.937928	1.134971	6.834998
1	0.230818	0.204905	4.162296	3.695012	0.887734	6.253571
1.5	0.246935	0.209542	4.45292	3.778624	0.848572	6.266491
2	0.253536	0.212019	4.571961	3.823301	0.83625	6.395698
2.5	0.233339	0.196165	4.207758	3.537396	0.840684	5.969317
3	0.22512	0.188807	4.059544	3.404713	0.838693	5.891794
3.5	0.235615	0.209678	4.248799	3.781074	0.889916	6.408618
4	0.228335	0.204479	4.117523	3.687325	0.89552	6.305254
4.5	0.223983	0.199561	4.039035	3.59865	0.890968	6.072682
5	0.199488	0.17043	3.597319	3.073321	0.854337	5.310367
5.5	0.183215	0.162064	3.30388	2.922472	0.884558	5.064876
6	0.22944	0.204182	4.13744	3.681973	0.889916	6.240651
6.5	0.211252	0.188136	3.809457	3.392614	0.890577	5.827191
7	0.204763	0.182121	3.692442	3.284158	0.889427	5.607541
7.5	0.203261	0.178903	3.665356	3.226112	0.880163	5.633382
8	0.230207	0.206155	4.151273	3.717549	0.89552	6.356936
8.5	0.230444	0.199755	4.155552	3.60214	0.866826	6.214809
9	0.225292	0.199278	4.062643	3.593534	0.884531	6.163126
9.5	0.198136	0.177554	3.572947	3.201787	0.896119	5.491256
10	0.22087	0.190144	3.982893	3.428833	0.86089	5.969317
10.5	0.246534	0.209172	4.445692	3.771959	0.848453	6.576585
11	0.210738	0.186173	3.800195	3.35722	0.883433	5.723826
11.5	0.224427	0.200022	4.047048	3.606955	0.891256	6.279413
12	0.204509	0.193614	3.68787	3.491395	0.946724	5.917635
12.5	0.198257	0.182419	3.575132	3.289526	0.920113	5.542938
13	0.212971	0.185633	3.840466	3.347479	0.871634	5.749668
13.5	0.233144	0.20202	4.204245	3.642991	0.866503	6.201889
14	0.211084	0.182736	3.806433	3.295237	0.865702	5.710906
14.5	0.182109	0.169978	3.283926	3.065181	0.933389	5.142399
15	0.204723	0.179767	3.69172	3.241697	0.878099	5.478335
15.5	0.215266	0.18605	3.881848	3.355002	0.86428	5.762588
16	0.213376	0.179698	3.847755	3.240451	0.842167	5.607541
16.5	0.210153	0.184874	3.789635	3.333797	0.879715	5.568779
17	0.212027	0.180932	3.82344	3.262701	0.853342	5.530017
17.5	0.270271	0.232666	4.873732	4.195616	0.860863	7.132172
18	0.202353	0.173565	3.648987	3.129869	0.857736	5.336208
18.5	0.200013	0.181304	3.606798	3.269412	0.906458	5.517097
19	0.206944	0.18588	3.731773	3.351933	0.898214	5.697986

19.5	0.190764	0.1761	3.440002	3.175571	0.923131	5.15532
20	0.198208	0.176193	3.574238	3.177253	0.888931	5.465415
20.5	0.231614	0.208157	4.176653	3.753659	0.898724	6.163126
21	0.298016	0.253309	5.374051	4.567862	0.849985	7.468107
21.5	0.181547	0.157338	3.273807	2.837241	0.866649	4.625575
22	0.194466	0.179041	3.506762	3.228613	0.920682	5.36205
22.5	0.196723	0.180336	3.547457	3.251952	0.916699	5.400811
23	0.262148	0.218014	4.727263	3.931394	0.831643	6.692872
23.5	0.170968	0.14563	3.083029	2.62612	0.851799	4.457607
24	0.215001	0.195898	3.87706	3.532585	0.91115	5.775508
24.5	0.233385	0.202995	4.208582	3.660569	0.869787	6.150206
25	0.242075	0.205925	4.365285	3.713403	0.850667	6.331095
25.5	0.213282	0.197275	3.846064	3.557425	0.924952	5.865953
26	0.188552	0.17349	3.400126	3.1285	0.920113	5.271605
26.5	0.202916	0.176812	3.659143	3.188405	0.871353	5.349129
27	0.207947	0.175446	3.749864	3.163782	0.843706	5.323288
27.5	0.199959	0.172891	3.605814	3.117707	0.864633	5.245764
28	0.190369	0.164985	3.43289	2.975142	0.866658	5.013193
28.5	0.230502	0.196315	4.156588	3.540107	0.851686	5.930556
29	0.206011	0.180922	3.714957	3.262525	0.878214	5.349129
29.5	0.222631	0.187333	4.014663	3.378141	0.841451	5.659224
30	0.191039	0.157489	3.444968	2.839968	0.824382	4.806464
30.5	0.248329	0.210365	4.478057	3.793467	0.847123	6.382777
31	0.234305	0.199458	4.225163	3.596789	0.851278	6.00808
31.5	0.21992	0.1927	3.965771	3.474926	0.87623	5.633382
32	0.238378	0.209711	4.298628	3.781666	0.879738	6.253571
32.5	0.187369	0.161629	3.37878	2.914613	0.862623	4.896908
33	0.188709	0.175604	3.402956	3.166638	0.930555	5.090717
33.5	0.197963	0.179101	3.569823	3.229686	0.904719	5.310367
34	0.193865	0.165352	3.495918	2.98175	0.852923	5.039034
34.5	0.227098	0.189522	4.095211	3.417612	0.834539	5.878873
Mean	0.215499	0.189335	3.886043	3.414232	0.880159	5.769704
SD	0.022935	0.01843	0.413587	0.332346	0.041826	0.568504

Subject Fourteen-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.245709	0.257363	4.52352	4.738072	1.04743	8.154024
1	0.311385	0.249266	5.732616	4.588995	0.800506	7.483123
1.5	0.287042	0.225595	5.284463	4.153215	0.785929	6.812222
2	0.266994	0.217585	4.915376	4.005747	0.814942	6.579987
2.5	0.260629	0.20808	4.798193	3.830766	0.798377	6.502575

3	0.187077	0.155346	3.44409	2.859922	0.830385	4.825324
3.5	0.191064	0.157787	3.517496	2.904865	0.825833	5.109167
4	0.1936	0.150895	3.564193	2.777983	0.779414	4.825324
4.5	0.206242	0.156132	3.796927	2.874401	0.757033	4.954344
5	0.196443	0.144079	3.616519	2.652494	0.733438	4.59309
5.5	0.198203	0.145892	3.648929	2.685881	0.736074	4.709207
6	0.218683	0.166396	4.025971	3.063352	0.760898	5.160774
6.5	0.195598	0.143499	3.600973	2.641821	0.733641	4.46407
7	0.237821	0.177672	4.3783	3.270944	0.747081	5.560734
7.5	0.195785	0.145198	3.60441	2.673097	0.741618	4.657598
8	0.211514	0.165895	3.893985	3.054128	0.784319	5.160774
8.5	0.22315	0.174931	4.108194	3.220483	0.783917	5.393009
9	0.222839	0.177707	4.102472	3.271599	0.79747	5.470421
9.5	0.195399	0.163788	3.597306	3.015347	0.838224	4.902736
10	0.169344	0.139245	3.117626	2.563508	0.822263	4.180227
10.5	0.188232	0.15028	3.465362	2.766664	0.798377	4.696304
11	0.158606	0.124903	2.919952	2.299474	0.787504	4.025404
11.5	0.166733	0.127505	3.069565	2.347365	0.764722	4.128619
12	0.19805	0.151725	3.646108	2.793271	0.766097	4.889833
12.5	0.23254	0.178606	4.281074	3.288146	0.768066	5.547832
13	0.220934	0.170251	4.0674	3.134334	0.770599	5.225284
13.5	0.174245	0.137267	3.207854	2.527089	0.787782	4.309247
14	0.204436	0.161349	3.763677	2.970444	0.78924	5.057559
14.5	0.186207	0.144525	3.428086	2.660704	0.776149	4.59309
15	0.18382	0.146892	3.384139	2.704281	0.799105	4.528579
15.5	0.186117	0.144799	3.426418	2.665759	0.778002	4.46407
16	0.264286	0.199976	4.865522	3.681558	0.756663	6.19293
16.5	0.161732	0.121054	2.977485	2.228608	0.748487	3.806071
17	0.27072	0.209445	4.983974	3.855895	0.773659	6.760614
17.5	0.18858	0.153628	3.47177	2.828289	0.814654	4.722108
18	0.196708	0.154282	3.621406	2.840339	0.784319	4.79952
18.5	0.195122	0.152104	3.592213	2.800242	0.779531	4.696304
19	0.177427	0.142075	3.266448	2.615611	0.800751	4.386658
19.5	0.222124	0.176971	4.089304	3.258046	0.796724	5.522029
20	0.189422	0.150718	3.487259	2.774725	0.795675	4.618893
20.5	0.195306	0.145112	3.59559	2.671523	0.743	4.618893
21	0.200225	0.15044	3.686146	2.769605	0.751355	4.773716
21.5	0.203916	0.153219	3.754095	2.82077	0.751385	4.876932
22	0.189816	0.141808	3.494513	2.610683	0.747081	4.438266
22.5	0.235325	0.172927	4.332344	3.183595	0.734844	5.470421
23	0.225552	0.175454	4.152421	3.230123	0.777889	5.393009
23.5	0.20092	0.156647	3.698948	2.883887	0.77965	4.851128
24	0.232743	0.186369	4.284811	3.431066	0.800751	5.754263

24.5	0.163169	0.126555	3.003957	2.329883	0.775605	3.960894
25	0.159616	0.127984	2.938533	2.356191	0.801826	3.922188
25.5	0.227378	0.178337	4.186034	3.283187	0.784319	5.547832
26	0.16891	0.128023	3.109639	2.356908	0.757936	3.935091
26.5	0.188307	0.137894	3.466747	2.538643	0.732284	4.309247
27	0.184439	0.137037	3.395521	2.522849	0.742993	4.335051
27.5	0.160718	0.118542	2.958821	2.182368	0.73758	3.715758
28	0.216315	0.161297	3.982372	2.969488	0.745658	4.980147
28.5	0.208064	0.153762	3.830462	2.830773	0.739016	4.670501
29	0.264639	0.192818	4.872008	3.549788	0.728609	5.909087
29.5	0.23336	0.176462	4.296158	3.248672	0.756181	5.289794
30	0.188132	0.154803	3.463525	2.849938	0.822843	4.515677
30.5	0.188226	0.153016	3.465255	2.817031	0.812936	4.696304
31	0.241258	0.194805	4.441576	3.586373	0.807455	6.051008
31.5	0.199952	0.161695	3.681117	2.97682	0.808673	4.889833
32	0.176205	0.149103	3.243947	2.744988	0.846188	4.386658
32.5	0.187435	0.152011	3.450684	2.798528	0.811007	4.644697
33	0.196555	0.157717	3.618586	2.903585	0.802409	4.876932
33.5	0.213981	0.169915	3.939395	3.12815	0.794069	5.19948
34	0.204425	0.154166	3.763474	2.838205	0.754145	4.876932
34.5	0.218827	0.181295	4.028613	3.337653	0.828487	5.341402
35	0.173719	0.13264	3.198179	2.441911	0.763532	4.077012
Mean	0.206114	0.161465	3.794572	2.972581	0.78278	5.011112
SD	0.031607	0.027547	0.58189	0.507144	0.043587	0.836748

Subject Fourteen-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.164603	0.264117	2.992776	4.802133	1.604575	9.225035
1	0.356685	0.319349	6.485185	5.806348	0.895325	9.845205
1.5	0.279218	0.240303	5.0767	4.369138	0.860626	7.364524
2	0.277915	0.249577	5.052993	4.537772	0.898036	7.648768
2.5	0.267272	0.232731	4.8595	4.231482	0.870765	7.261162
3	0.262385	0.240155	4.770645	4.366464	0.915277	7.274082
3.5	0.21624	0.194513	3.931641	3.536603	0.899523	5.891619
4	0.196534	0.178917	3.57335	3.253037	0.910361	5.34897
4.5	0.230097	0.19771	4.183575	3.594736	0.85925	6.150024
5	0.233857	0.19132	4.25194	3.478549	0.818109	5.96914
5.5	0.240619	0.201859	4.374885	3.670165	0.838917	6.150024
6	0.234053	0.18942	4.255512	3.444008	0.809305	5.865778
6.5	0.233291	0.190993	4.241657	3.4726	0.818689	5.994981
7	0.265993	0.222276	4.836236	4.041387	0.835647	6.976917

7.5	0.231145	0.196585	4.202633	3.574266	0.850483	6.124183
8	0.224319	0.195218	4.078523	3.549423	0.870272	6.072502
8.5	0.268388	0.233095	4.879774	4.238082	0.8685	7.338684
9	0.209402	0.181662	3.807313	3.302943	0.867526	5.684896
9.5	0.240635	0.210563	4.375176	3.828412	0.87503	6.589311
10	0.217638	0.18259	3.957057	3.31982	0.838962	5.891619
10.5	0.209303	0.176434	3.805507	3.20789	0.84296	5.710736
11	0.221618	0.199225	4.029422	3.622281	0.898958	6.253386
11.5	0.224805	0.196458	4.08736	3.571966	0.873905	6.175864
12	0.212984	0.189403	3.872445	3.443696	0.889282	5.891619
12.5	0.195292	0.172271	3.550765	3.1322	0.88212	5.37481
13	0.219244	0.189594	3.986253	3.447173	0.864765	5.96914
13.5	0.209929	0.178628	3.816895	3.24778	0.850896	5.581534
14	0.240492	0.199731	4.372585	3.631481	0.830511	6.175864
14.5	0.235146	0.195167	4.275383	3.5485	0.829984	6.098342
15	0.227863	0.192273	4.142968	3.495874	0.843809	6.007901
15.5	0.243617	0.20459	4.429401	3.71981	0.8398	6.55055
16	0.219625	0.183905	3.993191	3.343735	0.837359	5.9433
16.5	0.229366	0.198035	4.170287	3.600629	0.863401	6.330907
17	0.244234	0.210641	4.440616	3.829832	0.862455	6.692673
17.5	0.208957	0.177801	3.799225	3.232744	0.850896	5.555694
18	0.199263	0.181127	3.622961	3.293219	0.908986	5.478172
18.5	0.215777	0.184504	3.923213	3.354619	0.855069	5.646135
19	0.262244	0.207246	4.768072	3.768103	0.790278	6.718513
19.5	0.236764	0.190789	4.304799	3.468885	0.805818	6.253386
20	0.248578	0.21145	4.519597	3.844537	0.850637	6.770194
20.5	0.23712	0.1993	4.311268	3.623637	0.840504	6.511789
21	0.21108	0.179342	3.837822	3.260757	0.849637	6.020821
21.5	0.24179	0.209833	4.396183	3.815152	0.867833	6.899396
22	0.232909	0.201334	4.234713	3.660627	0.864433	6.640992
22.5	0.198387	0.17755	3.607037	3.228177	0.894966	5.865778
23	0.216839	0.197053	3.942519	3.582787	0.908756	6.175864
23.5	0.195971	0.167081	3.563102	3.037829	0.85258	5.284369
24	0.199481	0.168721	3.626923	3.067658	0.845802	5.504013
24.5	0.22867	0.200554	4.15764	3.646441	0.877046	6.421348
25	0.231956	0.195817	4.217377	3.560301	0.844198	6.137103
25.5	0.215388	0.17947	3.916153	3.2631	0.833241	5.684896
26	0.188806	0.154658	3.432844	2.811968	0.819137	5.142246
26.5	0.205661	0.174976	3.739289	3.18139	0.850801	5.762417
27	0.235495	0.20476	4.281723	3.722901	0.869487	6.48595
27.5	0.24782	0.207679	4.505817	3.775983	0.838024	6.460109
28	0.232677	0.194519	4.230488	3.53671	0.836005	6.124183
28.5	0.229291	0.190575	4.168925	3.465001	0.83115	6.111263

29	0.233557	0.20437	4.246494	3.715811	0.87503	6.395507
29.5	0.21767	0.182799	3.95763	3.323617	0.8398	5.852858
30	0.202783	0.179995	3.686959	3.27264	0.887626	5.607374
30.5	0.2095	0.174862	3.809084	3.179304	0.834664	5.607374
31	0.237916	0.196699	4.325745	3.576343	0.826758	6.356747
31.5	0.217281	0.182979	3.950567	3.326897	0.842131	5.96914
32	0.209714	0.18168	3.812986	3.303276	0.866323	5.917459
32.5	0.188079	0.164032	3.419618	2.982401	0.872144	5.219768
33	0.201219	0.170672	3.658535	3.103132	0.84819	5.439412
33.5	0.233177	0.194375	4.23959	3.534092	0.833593	6.175864
34	0.229206	0.195755	4.167389	3.559185	0.854056	6.098342
34.5	0.211666	0.173736	3.848469	3.15884	0.820804	5.478172
Mean	0.227485	0.196484	4.1361	3.572439	0.866693	6.220242
SD	0.027055	0.025014	0.491914	0.454805	0.09406	0.790859

Subject Fourteen-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.339328	0.276821	6.169606	5.033113	0.815792	8.630705
1	0.295767	0.257856	5.377591	4.688299	0.871822	8.088056
1.5	0.263788	0.242011	4.79614	4.400207	0.917448	7.545407
2	0.256243	0.225315	4.658964	4.096644	0.879304	7.067358
2.5	0.235698	0.202605	4.285427	3.683732	0.859595	6.56347
3	0.244471	0.213439	4.444924	3.880701	0.873063	6.925237
3.5	0.233637	0.194691	4.247953	3.539846	0.833306	6.356747
4	0.221903	0.188511	4.034603	3.427467	0.849518	6.253386
4.5	0.236436	0.197319	4.298829	3.587619	0.834557	6.524709
5	0.243344	0.205498	4.42444	3.736335	0.844476	6.524709
5.5	0.253382	0.208544	4.606943	3.791716	0.823044	6.434268
6	0.252481	0.205498	4.590557	3.736335	0.813918	6.524709
6.5	0.242713	0.202124	4.412966	3.674988	0.83277	6.447188
7	0.256716	0.21516	4.667559	3.911997	0.838125	6.873556
7.5	0.228721	0.186835	4.158565	3.397002	0.816869	6.033741
8	0.23254	0.202354	4.227994	3.679161	0.870191	6.356747
8.5	0.21748	0.184661	3.954181	3.357472	0.849094	5.917459
9	0.228442	0.196651	4.153499	3.575481	0.860836	6.253386
9.5	0.199457	0.171137	3.626496	3.111588	0.858015	5.400651
10	0.218197	0.182601	3.967227	3.320019	0.836861	5.762417
10.5	0.260799	0.211757	4.741799	3.85012	0.811953	6.692673
11	0.197943	0.157083	3.598959	2.856058	0.793579	5.025964
11.5	0.245343	0.196098	4.460778	3.565426	0.799283	6.382588
12	0.234914	0.188035	4.271168	3.418823	0.800442	6.072502

12.5	0.230386	0.185491	4.188845	3.372564	0.80513	5.827018
13	0.24798	0.20265	4.508723	3.684545	0.817204	6.434268
13.5	0.244599	0.203068	4.44725	3.692154	0.830211	6.53763
14	0.220657	0.187473	4.01195	3.408605	0.849613	5.9433
14.5	0.21999	0.182601	3.999825	3.320019	0.830041	5.762417
15	0.226324	0.180434	4.114987	3.280616	0.797236	5.827018
15.5	0.228443	0.183683	4.15351	3.3397	0.804067	5.96914
16	0.236105	0.186878	4.292815	3.397787	0.791505	6.111263
16.5	0.241448	0.195732	4.389971	3.558767	0.810658	6.214624
17	0.242076	0.193033	4.401381	3.509697	0.797408	6.253386
17.5	0.232899	0.187767	4.234524	3.413946	0.806217	6.150024
18	0.203162	0.176763	3.693851	3.213881	0.870062	5.478172
18.5	0.212118	0.174698	3.856683	3.176332	0.823592	5.529853
19	0.230916	0.184835	4.198468	3.360631	0.800442	5.96914
19.5	0.204764	0.165231	3.722983	3.0042	0.806934	5.33605
20	0.243089	0.192511	4.4198	3.500208	0.791938	6.150024
20.5	0.226131	0.17593	4.111476	3.198726	0.777999	5.594454
21	0.226175	0.177689	4.112278	3.230702	0.785623	5.659055
21.5	0.224982	0.176066	4.090588	3.201197	0.782576	5.607374
22	0.251247	0.192933	4.568122	3.507875	0.767903	6.201705
22.5	0.228091	0.179862	4.147107	3.270218	0.788554	5.710736
23	0.241309	0.188814	4.387443	3.432989	0.782458	5.994981
23.5	0.230392	0.179293	4.188948	3.259871	0.778208	5.736577
24	0.253614	0.20678	4.611159	3.759634	0.815334	6.408428
24.5	0.246859	0.196112	4.488353	3.565671	0.794427	6.188784
25	0.221776	0.178229	4.03229	3.240523	0.803643	5.607374
25.5	0.226201	0.186465	4.112746	3.390281	0.824335	5.839938
26	0.202191	0.170789	3.676198	3.105258	0.844693	5.34897
26.5	0.202295	0.165414	3.678095	3.007532	0.817687	5.284369
27	0.204285	0.163334	3.714274	2.969718	0.799542	5.193927
27.5	0.246027	0.194655	4.473227	3.539189	0.791194	6.124183
28	0.230135	0.182862	4.184265	3.324759	0.794586	5.788257
28.5	0.225204	0.182175	4.094619	3.312274	0.808934	5.775337
29	0.213076	0.171956	3.874107	3.126476	0.807018	5.426491
29.5	0.245709	0.197556	4.467433	3.591927	0.804025	6.253386
30	0.198782	0.162701	3.614221	2.9582	0.818489	5.142246
30.5	0.18976	0.154669	3.450189	2.812172	0.815078	4.987204
31	0.24602	0.203965	4.473096	3.708454	0.829057	6.48595
31.5	0.226897	0.179016	4.125409	3.254842	0.788974	5.736577
32	0.247224	0.196	4.494979	3.563641	0.792805	6.175864
32.5	0.238564	0.187483	4.337523	3.408787	0.785884	6.007901
33	0.211799	0.172025	3.850893	3.127729	0.812209	5.581534
33.5	0.229564	0.186864	4.173898	3.39753	0.813994	6.072502

34	0.233123	0.18826	4.238595	3.422914	0.807559	6.137103
34.5	0.223614	0.185802	4.065705	3.378222	0.830907	5.917459
35	0.229023	0.195944	4.164062	3.562623	0.855564	6.240465
Mean	0.233211	0.191073	4.2402	3.474053	0.819077	6.091144
SD	0.022338	0.020319	0.406152	0.369435	0.029033	0.624705

Subject Fifteen-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.040787	0	0.687598	0	5.680043
1	0.102766	0.185836	1.732461	3.132868	1.808334	6.061342
1.5	0.213443	0.184063	3.59828	3.102975	0.862349	5.640598
2	0.187258	0.145427	3.15684	2.451649	0.776615	4.404663
2.5	0.260669	0.196043	4.394419	3.304935	0.752075	6.061342
3	0.21912	0.176416	3.693985	2.974059	0.805109	5.140965
3.5	0.194555	0.153856	3.279855	2.593745	0.790811	4.483552
4	0.217687	0.162559	3.669811	2.740451	0.746755	4.996334
4.5	0.202289	0.154887	3.410229	2.611128	0.765675	4.746517
5	0.211361	0.160692	3.563172	2.708989	0.760274	4.983186
5.5	0.220307	0.162957	3.71398	2.747175	0.739685	5.233003
6	0.20653	0.156497	3.481738	2.638256	0.757741	5.048927
6.5	0.209116	0.161581	3.525332	2.723965	0.772683	5.311892
7	0.184603	0.148291	3.112074	2.499932	0.803301	4.79911
7.5	0.178509	0.14459	3.009349	2.437525	0.809984	4.693924
8	0.193201	0.155198	3.25702	2.616368	0.803301	5.022631
8.5	0.193901	0.145828	3.268836	2.458401	0.752072	4.983186
9	0.191027	0.145682	3.220375	2.455945	0.762627	4.970037
9.5	0.219653	0.180794	3.702963	3.047863	0.823088	5.85097
10	0.19844	0.166055	3.345353	2.799398	0.836802	5.180409
10.5	0.181938	0.15896	3.067151	2.67979	0.873706	4.772814
11	0.255843	0.207586	4.313066	3.499535	0.81138	6.889682
11.5	0.163975	0.14931	2.764333	2.517099	0.910563	4.57559
12	0.186027	0.170497	3.13609	2.874282	0.916518	5.075224
12.5	0.21065	0.190759	3.551193	3.215859	0.905571	5.811525
13	0.178679	0.155691	3.012213	2.624674	0.871344	4.65448
13.5	0.148506	0.129232	2.503554	2.178623	0.870212	3.931326
14	0.168943	0.135918	2.848083	2.291342	0.804521	4.4967
14.5	0.174503	0.151652	2.941818	2.556594	0.869052	4.759665
15	0.181543	0.145166	3.060497	2.447243	0.799623	4.65448
15.5	0.189125	0.157626	3.188315	2.657296	0.833448	4.917444
16	0.143938	0.131192	2.426539	2.211673	0.911452	3.734102
16.5	0.198229	0.165129	3.341799	2.78378	0.833018	4.943741

17	0.219862	0.171434	3.706494	2.890071	0.779732	5.522264
17.5	0.178602	0.14419	3.010911	2.430788	0.807326	4.601887
18	0.210096	0.170014	3.541846	2.86614	0.809222	5.311892
18.5	0.154629	0.129095	2.606775	2.176311	0.834867	3.944474
19	0.152681	0.124752	2.573933	2.103101	0.817077	3.891881
19.5	0.186173	0.155606	3.13854	2.623251	0.835819	4.891148
20	0.247814	0.196332	4.177705	3.309817	0.792257	6.363752
20.5	0.225322	0.177579	3.798532	2.993664	0.788111	5.837822
21	0.193529	0.164964	3.262553	2.781007	0.852402	5.154113
21.5	0.197071	0.167476	3.322273	2.823353	0.849826	5.193558
22	0.231768	0.180368	3.907192	3.040694	0.77823	6.15338
22.5	0.175623	0.152482	2.960688	2.57057	0.868234	5.10152
23	0.180687	0.169252	3.046072	2.853285	0.93671	5.233003
23.5	0.192141	0.171461	3.239151	2.890535	0.892374	5.285595
24	0.172898	0.14344	2.914748	2.418137	0.829621	4.536146
24.5	0.160503	0.135956	2.705795	2.291986	0.847066	4.312625
25	0.205295	0.171435	3.460909	2.890098	0.835069	5.653747
25.5	0.141465	0.119563	2.38485	2.015617	0.845176	3.918178
26	0.215568	0.192437	3.634092	3.24414	0.892696	5.811525
26.5	0.180524	0.147938	3.043312	2.493976	0.819494	4.772814
27	0.179049	0.149161	3.018449	2.514588	0.833073	4.812259
27.5	0.19689	0.17197	3.319214	2.899109	0.873432	5.285595
28	0.221922	0.188629	3.74122	3.179957	0.849979	5.680043
28.5	0.17311	0.149509	2.91833	2.520463	0.863666	4.444108
29	0.195052	0.167147	3.288225	2.817801	0.856937	5.114668
29.5	0.138294	0.115529	2.331392	1.947616	0.835388	3.681509
30	0.189729	0.161317	3.198504	2.719528	0.85025	5.10152
30.5	0.152391	0.125581	2.56905	2.117074	0.824069	4.115401
31	0.20269	0.165056	3.41699	2.782559	0.814331	5.443375
31.5	0.138646	0.110289	2.337335	1.859279	0.79547	3.707806
32	0.211452	0.174427	3.5647	2.94054	0.824905	5.653747
32.5	0.158946	0.130615	2.679545	2.201935	0.821757	4.246884
33	0.182883	0.148698	3.083091	2.506781	0.813074	4.812259
33.5	0.185974	0.144141	3.135192	2.429956	0.775058	4.917444
34	0.178998	0.145958	3.017592	2.4606	0.815418	4.891148
34.5	0.238182	0.182408	4.015333	3.075081	0.765835	6.284863
35	0.208198	0.16181	3.509844	2.727829	0.777194	5.640598
Mean	0.188014	0.156497	3.169587	2.638261	0.826298	5.026199
SD	0.036547	0.024627	0.616115	0.415166	0.160872	0.67014

Subject Fifteen-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.008828	0.118501	0.147136	1.975011	13.42299	6.296539
1	0.191077	0.224019	3.18461	3.733656	1.172406	6.702345
1.5	0.246514	0.202358	4.108567	3.372642	0.82088	5.707466
2	0.252913	0.194703	4.215217	3.245058	0.769844	5.367113
2.5	0.251925	0.20891	4.198744	3.481835	0.829256	5.53729
3	0.267745	0.216548	4.462415	3.609126	0.808783	5.890733
3.5	0.263874	0.222108	4.397901	3.701797	0.841719	5.864552
4	0.270283	0.215303	4.504713	3.588386	0.796585	6.04782
4.5	0.261045	0.202289	4.350752	3.371476	0.774918	6.034729
5	0.267457	0.209058	4.457625	3.484295	0.781648	6.55835
5.5	0.196204	0.168041	3.270072	2.800679	0.856458	5.131483
6	0.22729	0.192427	3.788174	3.207118	0.846613	5.7991
6.5	0.249969	0.207785	4.166157	3.463088	0.831243	6.335811
7	0.277365	0.20295	4.622751	3.382496	0.731706	7.147423
7.5	0.210178	0.159482	3.502971	2.658029	0.758793	5.655104
8	0.224479	0.1862	3.741316	3.103336	0.829477	6.178725
8.5	0.241415	0.194366	4.023578	3.239425	0.805111	6.388173
9	0.226827	0.176783	3.780448	2.946383	0.779374	6.152544
9.5	0.177035	0.145134	2.95059	2.418902	0.819803	5.000578
10	0.192022	0.164439	3.200363	2.740645	0.856355	5.262388
10.5	0.217892	0.189423	3.631537	3.157057	0.869345	5.733647
11	0.200343	0.16274	3.339054	2.712326	0.812304	5.105302
11.5	0.224968	0.175764	3.749467	2.929407	0.781286	5.786009
12	0.188457	0.159168	3.140946	2.652798	0.844586	4.948216
12.5	0.24649	0.197231	4.108171	3.287188	0.800158	6.244177
13	0.254819	0.211979	4.246988	3.532978	0.831879	6.649983
13.5	0.287335	0.232341	4.788912	3.872354	0.808608	7.435415
14	0.219625	0.190051	3.66041	3.167513	0.865344	5.81219
14.5	0.26365	0.22249	4.394169	3.708166	0.843883	6.990336
15	0.182314	0.165469	3.038568	2.757812	0.907602	5.05294
15.5	0.19888	0.178183	3.31467	2.969709	0.895929	5.498018
16	0.202285	0.16807	3.371422	2.801162	0.830855	5.55038
16.5	0.223221	0.185543	3.72035	3.092382	0.831207	6.021638
17	0.214561	0.169252	3.576012	2.820867	0.78883	5.81219
17.5	0.220464	0.178253	3.674407	2.970889	0.808536	6.06091
18	0.207504	0.16077	3.458399	2.679492	0.774778	5.681285
18.5	0.234273	0.189418	3.904554	3.156971	0.808535	6.440535
19	0.250747	0.201075	4.179116	3.351245	0.801903	6.859432
19.5	0.240346	0.199838	4.005765	3.330631	0.831459	6.505988
20	0.220798	0.173139	3.679974	2.885653	0.78415	5.995458
20.5	0.214052	0.174163	3.567535	2.902723	0.81365	6.283449
21	0.192478	0.161663	3.207963	2.694388	0.839906	5.81219

21.5	0.194978	0.166908	3.249628	2.781797	0.856035	5.7991
22	0.203601	0.175031	3.393343	2.917179	0.859677	5.864552
22.5	0.199973	0.178497	3.332882	2.974946	0.892605	5.524199
23	0.228313	0.182457	3.805216	3.040946	0.799152	6.074
23.5	0.222938	0.175573	3.71564	2.926224	0.787542	6.100182
24	0.237735	0.192474	3.962259	3.207901	0.809614	6.676165
24.5	0.235402	0.213181	3.923369	3.553015	0.905603	6.728527
25	0.224414	0.193608	3.740237	3.226797	0.862725	6.244177
25.5	0.229911	0.204778	3.831845	3.412964	0.890684	6.414354
26	0.210067	0.177755	3.501112	2.96259	0.846186	6.165634
26.5	0.19495	0.170969	3.249174	2.849492	0.876989	5.890733
27	0.183192	0.162501	3.053204	2.708356	0.887054	5.589652
27.5	0.203401	0.181398	3.39002	3.023308	0.891826	5.943095
28	0.192205	0.179939	3.203415	2.998989	0.936185	5.511108
28.5	0.217056	0.180822	3.617601	3.013697	0.833065	5.877643
29	0.236561	0.189246	3.942681	3.154093	0.799987	6.676165
29.5	0.208205	0.190954	3.470089	3.182575	0.917145	6.139453
30	0.186244	0.151052	3.104073	2.517535	0.811043	5.05294
30.5	0.269202	0.244593	4.486695	4.07655	0.908587	7.592501
31	0.184731	0.19148	3.078851	3.191339	1.036535	5.393293
31.5	0.209471	0.19986	3.491188	3.331005	0.954118	5.746737
32	0.174222	0.148399	2.903703	2.473323	0.851782	4.869673
32.5	0.180267	0.169077	3.004444	2.817946	0.937926	5.170755
33	0.207239	0.177665	3.453978	2.96109	0.857298	5.642013
33.5	0.292056	0.243152	4.867601	4.052533	0.832552	7.854311
34	0.185769	0.180892	3.096146	3.014867	0.973748	5.223117
34.5	0.162411	0.160242	2.706843	2.670693	0.986645	4.594772
35	0.213557	0.191479	3.559288	3.191323	0.896618	5.864552
Mean	0.218543	0.186163	3.642386	3.102717	1.02868	5.965162
SD	0.03908	0.023193	0.651337	0.386543	1.504438	0.642318

Subject Fifteen-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.174754	0.158303	2.934798	2.658518	0.905861	8.200238
1	0.112512	0.11893	1.889516	1.997291	1.057038	6.253979
1.5	0.105529	0.112514	1.772239	1.889554	1.066196	5.916627
2	0.103488	0.103594	1.737965	1.739755	1.00103	5.722001
2.5	0.10523	0.109983	1.767229	1.847036	1.045159	5.683076
3	0.105418	0.10289	1.770382	1.72792	0.976015	5.683076
3.5	0.104704	0.100251	1.758381	1.683598	0.957471	5.734976
4	0.084867	0.081655	1.42525	1.371307	0.962152	5.060273

4.5	0.103316	0.121451	1.735081	2.039632	1.175525	6.007452
5	0.114592	0.108046	1.92445	1.814512	0.942873	6.215054
5.5	0.099047	0.095686	1.663377	1.606939	0.966071	5.825802
6	0.080672	0.075646	1.354794	1.27039	0.9377	4.891598
6.5	0.088699	0.094755	1.489606	1.591311	1.068277	5.332749
7	0.074697	0.084564	1.254452	1.420155	1.132092	4.424495
7.5	0.162905	0.179701	2.735804	3.017881	1.103106	5.838777
8	0.237107	0.155861	3.981956	2.617506	0.657342	6.033403
8.5	0.191229	0.135386	3.211481	2.273664	0.70798	5.164073
9	0.176688	0.139473	2.967277	2.342298	0.789376	4.982423
9.5	0.172957	0.134639	2.904628	2.261114	0.778452	4.696971
10	0.187914	0.153555	3.155812	2.578783	0.817153	5.060273
10.5	0.232447	0.180048	3.90369	3.023704	0.774576	6.137203
11	0.20194	0.154894	3.391352	2.601268	0.76703	5.358699
11.5	0.185299	0.145884	3.111888	2.449968	0.787293	4.956473
12	0.207232	0.154486	3.480237	2.594418	0.745472	5.605226
12.5	0.16992	0.135443	2.853612	2.274614	0.7971	4.748872
13	0.169596	0.135156	2.848186	2.269799	0.796928	4.722922
13.5	0.172708	0.136232	2.900437	2.287863	0.788799	4.800772
14	0.176045	0.130682	2.956479	2.194663	0.742323	4.774822
14.5	0.169885	0.136237	2.853026	2.287942	0.801935	4.606146
15	0.209967	0.166137	3.526161	2.790089	0.791254	5.527375
15.5	0.18394	0.132479	3.089062	2.224846	0.720234	4.748872
16	0.187741	0.134824	3.152897	2.264222	0.71814	4.943498
16.5	0.197765	0.136659	3.32124	2.295043	0.69102	5.319775
17	0.206961	0.14864	3.475684	2.496247	0.718203	5.722001
17.5	0.174993	0.127877	2.93881	2.147548	0.730754	4.904572
18	0.195501	0.139012	3.283226	2.334554	0.711055	5.5144
18.5	0.179065	0.138026	3.007205	2.317988	0.770812	5.293824
19	0.183436	0.13305	3.080603	2.234432	0.725323	5.267874
19.5	0.19075	0.15013	3.203428	2.521261	0.787051	5.5144
20	0.224035	0.171999	3.762414	2.888537	0.767735	6.176128
20.5	0.165377	0.124587	2.777331	2.092303	0.75335	4.528296
21	0.15797	0.122769	2.652927	2.061766	0.777166	4.33367
21.5	0.228984	0.180961	3.84554	3.039034	0.790275	6.344804
22	0.166837	0.119859	2.801847	2.012899	0.718419	4.580196
22.5	0.183792	0.138751	3.08658	2.330172	0.754936	5.034323
23	0.189819	0.142715	3.187792	2.396736	0.751849	5.345725
23.5	0.173009	0.13235	2.905492	2.22267	0.764989	4.904572
24	0.175293	0.130078	2.943844	2.184518	0.742063	4.943498
24.5	0.205869	0.157138	3.457345	2.638962	0.763291	5.812827
25	0.195131	0.150814	3.277016	2.53276	0.772886	5.4625
25.5	0.230489	0.161	3.870801	2.703809	0.698514	6.435629

26	0.160642	0.159906	2.697805	2.685442	0.995417	4.826722
26.5	0.170303	0.162368	2.860049	2.726785	0.953405	4.709947
27	0.211114	0.178816	3.545432	3.003018	0.84701	5.358699
27.5	0.17962	0.14486	3.016522	2.432758	0.806478	4.606146
28	0.188062	0.155944	3.158299	2.618902	0.829213	4.943498
28.5	0.148215	0.117801	2.489103	1.97833	0.794796	3.944418
29	0.205342	0.163336	3.448494	2.743043	0.795432	5.54035
29.5	0.163809	0.126457	2.750998	2.123698	0.771974	4.41152
30	0.195896	0.144558	3.28986	2.427694	0.737932	5.164073
30.5	0.165123	0.125922	2.773063	2.114727	0.762596	4.43747
31	0.207195	0.149323	3.479606	2.507721	0.720691	5.553326
31.5	0.172014	0.122449	2.888778	2.056402	0.711859	4.748872
32	0.191409	0.143904	3.214497	2.416713	0.751817	5.332749
32.5	0.151072	0.110416	2.537082	1.854311	0.730883	4.203919
33	0.192535	0.13483	3.233421	2.264317	0.700285	5.358699
33.5	0.153566	0.12093	2.578971	2.030888	0.78748	4.48937
34	0.213452	0.166962	3.584683	2.803934	0.782199	5.903652
34.5	0.21147	0.157984	3.551406	2.65316	0.747073	5.605226
35	0.21211	0.152539	3.56216	2.561731	0.719151	5.683076
Mean	0.171015	0.136501	2.872012	2.292391	0.820191	5.284556
SD	0.040163	0.023764	0.674486	0.399088	0.121402	0.671339

Subject Fifteen-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0	0.05164	0	0.867233	0	5.919476
1	0.064447	0.182139	1.08231	3.058821	2.826195	6.225426
1.5	0.169464	0.185661	2.845964	3.117967	1.095575	5.746547
2	0.260589	0.22444	4.376312	3.769214	0.861276	6.784118
2.5	0.235699	0.194956	3.95831	3.274066	0.827137	5.613525
3	0.261357	0.206288	4.389198	3.464384	0.789298	6.172217
3.5	0.24024	0.202409	4.034562	3.399239	0.84253	6.012591
4	0.297884	0.248408	5.002635	4.171738	0.833908	7.608854
4.5	0.258029	0.213766	4.333304	3.589964	0.828459	6.91714
5	0.217419	0.178191	3.651316	2.992519	0.819573	6.172217
5.5	0.199208	0.173062	3.34547	2.906391	0.868754	6.0658
6	0.190205	0.176163	3.194277	2.958456	0.926174	5.932777
6.5	0.244176	0.227698	4.100661	3.823939	0.932518	7.209789
7	0.228317	0.192571	3.834335	3.234016	0.843436	6.784118
7.5	0.194647	0.173395	3.268887	2.911978	0.890817	6.119009
8	0.179587	0.163049	3.01597	2.738224	0.907908	5.666734
8.5	0.20743	0.187364	3.483556	3.146579	0.903266	6.198822
9	0.233854	0.208658	3.927311	3.504187	0.892261	7.050162
9.5	0.23272	0.204729	3.908274	3.438199	0.879723	7.103371
10	0.19024	0.166233	3.194871	2.791701	0.873807	5.866267

10.5	0.189927	0.176477	3.189606	2.963732	0.929184	6.092404
11	0.181771	0.156153	3.052639	2.622412	0.859064	5.586921
11.5	0.188599	0.166131	3.16732	2.789984	0.880866	5.892871
12	0.184311	0.165744	3.095301	2.783492	0.899264	5.693339
12.5	0.186497	0.165052	3.132006	2.771864	0.885012	5.613525
13	0.181322	0.155935	3.045103	2.61875	0.859987	5.347481
13.5	0.20839	0.187364	3.499671	3.146579	0.899107	6.198822
14	0.190958	0.16699	3.206923	2.804416	0.874488	5.507108
14.5	0.203341	0.170025	3.414894	2.85538	0.836155	5.773152
15	0.182615	0.160365	3.06682	2.693149	0.878157	5.427295
15.5	0.207018	0.175412	3.476635	2.945857	0.84733	6.0658
16	0.177547	0.153613	2.981698	2.579757	0.865198	5.320877
16.5	0.189869	0.167165	3.188642	2.807355	0.880423	5.666734
17	0.168578	0.142242	2.831077	2.388798	0.843777	5.028229
17.5	0.192349	0.171082	3.230295	2.873138	0.889435	5.906174
18	0.177739	0.154896	2.984928	2.601305	0.87148	5.294272
18.5	0.205427	0.179025	3.449917	3.006533	0.87148	6.119009
19	0.198564	0.172327	3.33466	2.894039	0.867866	5.999289
19.5	0.181417	0.161679	3.046695	2.715219	0.891201	5.427295
20	0.189275	0.165288	3.178672	2.775826	0.873266	5.640129
20.5	0.183646	0.160293	3.084125	2.691949	0.87284	5.533712
21	0.182216	0.165561	3.060123	2.780414	0.908595	5.640129
21.5	0.20752	0.185248	3.485067	3.111042	0.892678	6.119009
22	0.19018	0.165653	3.193859	2.781954	0.871032	5.480504
22.5	0.210281	0.185545	3.531432	3.116018	0.882367	6.119009
23	0.223207	0.227753	3.748509	3.824867	1.02037	6.996953
23.5	0.249431	0.236387	4.18892	3.969865	0.947706	6.863932
24	0.21967	0.204788	3.689121	3.439187	0.932251	6.0658
24.5	0.213012	0.185263	3.577301	3.111295	0.869732	6.158915
25	0.196985	0.18656	3.308147	3.133075	0.947078	6.172217
25.5	0.200281	0.188205	3.363498	3.160695	0.939705	6.464866
26	0.185064	0.172409	3.107945	2.895423	0.93162	5.892871
26.5	0.162988	0.152202	2.737202	2.556057	0.933821	5.254366
27	0.192715	0.175088	3.236434	2.940408	0.908533	6.105706
27.5	0.170415	0.162736	2.861924	2.732964	0.954939	5.453899
28	0.207777	0.185572	3.489381	3.116481	0.893133	6.385053
28.5	0.197377	0.180678	3.314724	3.034295	0.915399	6.025893
29	0.189478	0.169784	3.182074	2.851342	0.896064	5.653432
29.5	0.189052	0.166107	3.174922	2.789588	0.878632	5.640129
30	0.180812	0.15891	3.036536	2.668713	0.878868	5.560317
30.5	0.195189	0.180306	3.277977	3.028032	0.92375	6.132311
31	0.185213	0.165728	3.110451	2.783218	0.894796	5.75985
31.5	0.169764	0.155194	2.850992	2.606315	0.914178	5.201158
32	0.199196	0.178018	3.345277	2.989616	0.893683	6.145613
32.5	0.180984	0.166578	3.039429	2.797489	0.9204	5.573619
33	0.192456	0.171701	3.232093	2.883528	0.892155	5.653432
33.5	0.195098	0.172336	3.276455	2.894192	0.88333	5.719943
34	0.267242	0.260406	4.48803	4.373229	0.974421	7.848294
34.5	0.219598	0.216677	3.687912	3.63885	0.986696	6.012591

35	0.210547	0.216099	3.535901	3.629147	1.026371	5.932777
Mean	0.197977	0.179594	3.324811	3.016081	0.910436	6.0048
SD	0.039371	0.028382	0.661188	0.476639	0.260407	0.560148

Subject Sixteen-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.363963	0.293607	4.927503	3.974981	0.806693	7.381911
1	0.354468	0.284737	4.798947	3.854904	0.803281	7.023717
1.5	0.361006	0.291983	4.887462	3.952995	0.808803	7.288469
2	0.342521	0.284312	4.637201	3.849149	0.830059	7.054865
2.5	0.346543	0.284572	4.69166	3.852665	0.821173	6.945849
3	0.340519	0.275592	4.610107	3.731092	0.809329	6.790112
3.5	0.352667	0.298363	4.774568	4.039374	0.846019	7.724532
4	0.317259	0.266532	4.295197	3.608428	0.840108	6.774539
4.5	0.349183	0.29582	4.727403	4.004951	0.847178	7.428632
5	0.313405	0.267745	4.243018	3.62485	0.854309	6.914701
5.5	0.32467	0.279814	4.39553	3.788257	0.861843	7.33519
6	0.287473	0.243298	3.891946	3.29388	0.846332	6.229461
6.5	0.355819	0.291453	4.817237	3.945832	0.819107	7.444206
7	0.411595	0.341096	5.572364	4.617914	0.828717	8.90813
7.5	0.227458	0.213535	3.079433	2.890931	0.938787	5.668809
8	0.297851	0.254591	4.032447	3.446766	0.854758	6.431919
8.5	0.284371	0.245699	3.849949	3.326392	0.864009	6.727818
9	0.342938	0.300516	4.642857	4.068524	0.876297	8.207314
9.5	0.235226	0.224553	3.184601	3.040102	0.954626	5.777825
10	0.266374	0.226597	3.606293	3.06778	0.850674	5.808972
10.5	0.41103	0.346835	5.564709	4.695611	0.84382	8.300757
11	0.272781	0.227468	3.693033	3.079572	0.833887	5.637662
11.5	0.377547	0.341238	5.111405	4.619836	0.903829	8.176167
12	0.319196	0.266445	4.321419	3.607262	0.83474	6.276182
12.5	0.299376	0.258942	4.05309	3.505672	0.864938	6.712244
13	0.266723	0.226171	3.611022	3.062012	0.847963	6.058151
13.5	0.286604	0.240005	3.880177	3.249303	0.837411	6.198314
14	0.35069	0.297057	4.747806	4.02169	0.847063	7.662237
14.5	0.339727	0.298304	4.599385	4.038574	0.878068	7.163881
15	0.263363	0.211082	3.565529	2.857726	0.801487	5.575368
15.5	0.297651	0.24342	4.029737	3.295527	0.817802	6.47864
16	0.301019	0.242118	4.075334	3.277903	0.804328	6.260608
16.5	0.357432	0.286646	4.839076	3.880741	0.801959	7.241748
17	0.322157	0.26141	4.361506	3.539085	0.811437	6.540935
17.5	0.267211	0.219711	3.617622	2.974547	0.822238	5.653236

18	0.34949	0.287185	4.731553	3.888047	0.821728	7.33519
18.5	0.268304	0.229071	3.632423	3.101276	0.853776	5.88684
19	0.277082	0.226499	3.751269	3.066447	0.817442	5.871267
19.5	0.319025	0.264822	4.319105	3.585278	0.830097	7.039291
20	0.303627	0.25407	4.110639	3.439718	0.836784	6.618802
20.5	0.282782	0.231837	3.828437	3.138714	0.819842	5.871267
21	0.287335	0.235358	3.89007	3.186383	0.819107	6.01143
21.5	0.260453	0.216439	3.526137	2.930248	0.831008	5.435205
22	0.371537	0.306864	5.030038	4.15447	0.825932	7.724532
22.5	0.230558	0.202794	3.121396	2.745515	0.879579	5.186027
23	0.312648	0.266993	4.232771	3.614672	0.853973	6.696671
Mean	0.314579	0.2642	4.258922	3.576861	0.841355	6.727818
SD	0.044442	0.035756	0.601672	0.484083	0.032467	0.850695

Subject Sixteen-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.158923	0.15123	2.144969	2.041144	0.951596	6.680542
1	0.429813	0.319112	5.801159	4.307036	0.742444	7.531365
1.5	0.410379	0.30654	5.538857	4.137347	0.746968	6.995662
2	0.340148	0.264249	4.590949	3.566547	0.776865	6.286642
2.5	0.356926	0.271926	4.817409	3.670171	0.761856	6.144838
3	0.400588	0.309836	5.406713	4.181829	0.773451	7.27927
3.5	0.312372	0.243157	4.216059	3.281873	0.778422	5.955766
4	0.362135	0.281087	4.887719	3.793816	0.776194	6.901125
4.5	0.331048	0.255484	4.468136	3.448256	0.771744	6.302398
5	0.339166	0.265697	4.577698	3.586093	0.783384	6.633274
5.5	0.383539	0.298441	5.176604	4.028038	0.778123	7.720438
6	0.334316	0.264936	4.512238	3.575824	0.792472	7.074442
6.5	0.260501	0.216878	3.515959	2.927184	0.832542	5.561866
7	0.331291	0.261113	4.471412	3.524229	0.788169	6.25513
7.5	0.306043	0.238128	4.130649	3.213992	0.778084	6.144838
8	0.294885	0.230513	3.980045	3.111221	0.781705	5.955766
8.5	0.296937	0.228186	4.007737	3.079815	0.768467	5.703671
9	0.328751	0.249659	4.437134	3.369635	0.759417	6.507226
9.5	0.325993	0.241575	4.399909	3.260525	0.741044	5.813962
10	0.277094	0.208891	3.739919	2.819384	0.753862	5.357038
10.5	0.353765	0.273871	4.774748	3.696419	0.77416	6.853858
11	0.347658	0.26522	4.692321	3.579657	0.762876	6.869614
11.5	0.243067	0.188	3.280663	2.537425	0.773449	4.900115
12	0.29643	0.231899	4.000899	3.129922	0.782305	6.17635
12.5	0.306931	0.234866	4.142622	3.169975	0.76521	6.144838
13	0.333702	0.252026	4.503956	3.401584	0.755244	6.239374
13.5	0.344657	0.2603	4.651813	3.513253	0.755244	6.444202
14	0.283444	0.21751	3.825626	2.935712	0.767381	5.483087

14.5	0.350284	0.258417	4.727765	3.487842	0.737736	6.570249
15	0.317754	0.239298	4.288699	3.229788	0.753093	5.924254
15.5	0.284566	0.220622	3.840774	2.977722	0.775292	5.514598
16	0.292668	0.229317	3.950121	3.09507	0.783538	5.766695
16.5	0.295215	0.227937	3.984495	3.076446	0.772104	5.845474
17	0.301697	0.232599	4.071989	3.13938	0.77097	5.987278
17.5	0.270882	0.2094	3.656081	2.826256	0.773029	5.246747
18	0.326249	0.249241	4.403367	3.363983	0.763957	6.09757
18.5	0.30227	0.228882	4.079717	3.089203	0.75721	5.876986
19	0.292857	0.227181	3.952676	3.06624	0.775738	5.876986
19.5	0.3106	0.241178	4.192146	3.255166	0.776492	6.050302
20	0.301828	0.231264	4.073758	3.121357	0.766211	5.766695
20.5	0.280858	0.216159	3.79072	2.917483	0.769638	5.435818
21	0.34058	0.264435	4.596785	3.569057	0.776425	6.601762
21.5	0.274513	0.22216	3.705083	2.998483	0.809289	5.46733
22	0.380973	0.295522	5.141961	3.988646	0.775705	7.625901
22.5	0.335796	0.263604	4.532216	3.557847	0.785013	6.381178
23	0.307931	0.248587	4.156119	3.355159	0.807282	6.17635
23.5	0.33724	0.276837	4.551705	3.736452	0.820891	6.995662
24	0.27677	0.226809	3.735542	3.061219	0.819485	5.845474
24.5	0.28946	0.228952	3.906828	3.09015	0.790962	5.813962
25	0.326536	0.250979	4.407239	3.387447	0.76861	6.428446
25.5	0.332356	0.267233	4.485783	3.606829	0.804058	6.712054
26	0.272839	0.21511	3.682495	2.903324	0.788412	5.435818
26.5	0.291891	0.230531	3.939628	3.111456	0.789784	5.86123
27	0.306284	0.243985	4.133893	3.293055	0.796599	6.113326
27.5	0.285131	0.228729	3.848396	3.087135	0.802188	5.829718
28	0.33214	0.262836	4.482875	3.547477	0.79134	6.49147
28.5	0.332429	0.258062	4.486779	3.483048	0.776292	6.381178
29	0.294462	0.226911	3.974336	3.062603	0.770595	5.577622
29.5	0.300201	0.236187	4.051796	3.187794	0.786761	5.86123
30	0.345938	0.266983	4.6691	3.60345	0.771765	6.601762
30.5	0.314219	0.239709	4.240998	3.235332	0.76287	5.955766
31	0.285869	0.229291	3.85835	3.094728	0.802086	5.829718
31.5	0.323428	0.251484	4.365287	3.394262	0.777558	6.270886
32	0.357069	0.284572	4.819339	3.840845	0.796965	6.33391
32.5	0.336049	0.270287	4.535627	3.648045	0.804309	6.459958
33	0.320838	0.256633	4.33033	3.463755	0.799882	6.17635
33.5	0.263447	0.211276	3.55573	2.851583	0.801968	5.199478
34	0.337439	0.27271	4.554389	3.680749	0.808176	7.090199
34.5	0.300084	0.242511	4.05021	3.273157	0.808145	5.829718
35	0.339451	0.274863	4.581547	3.709811	0.809729	6.349666
Mean	0.316566	0.246994	4.272666	3.333668	0.782155	6.193907
SD	0.04004	0.028353	0.540418	0.382675	0.028408	0.580715

Subject Sixteen-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.291756	0.276474	3.878329	3.675189	0.947622	7.277802
1	0.337304	0.300192	4.483803	3.990463	0.889973	7.371107
1.5	0.390113	0.317179	5.185788	4.216278	0.813045	7.371107
2	0.403834	0.337169	5.368193	4.482002	0.834918	7.853184
2.5	0.370884	0.32104	4.930186	4.267603	0.865607	7.386659
3	0.284159	0.250074	3.777341	3.324249	0.88005	5.97153
3.5	0.361076	0.307448	4.799807	4.086916	0.851475	7.168946
4	0.372031	0.314431	4.945422	4.179749	0.845176	7.340006
4.5	0.328864	0.28643	4.371607	3.807522	0.870966	6.951234
5	0.358164	0.311647	4.761094	4.142742	0.870124	7.433311
5.5	0.323068	0.280976	4.294554	3.735022	0.869711	6.826828
6	0.38388	0.334116	5.102936	4.44142	0.870366	8.070897
6.5	0.321607	0.284747	4.275132	3.785162	0.885391	6.189242
7	0.318659	0.278368	4.235952	3.700363	0.873561	6.469158
7.5	0.340146	0.301104	4.521574	4.002594	0.885221	7.526616
8	0.333716	0.29127	4.436109	3.871869	0.872807	7.168946
8.5	0.378852	0.32781	5.036106	4.357598	0.865271	8.039794
9	0.316912	0.275507	4.212725	3.66233	0.869349	6.749073
9.5	0.339435	0.29172	4.512132	3.877849	0.859427	7.137845
10	0.329091	0.289664	4.374621	3.850515	0.880194	7.137845
10.5	0.293798	0.258105	3.905474	3.431	0.87851	6.220344
11	0.278979	0.250277	3.708485	3.326941	0.897116	6.189242
11.5	0.269554	0.243252	3.583197	3.233556	0.902422	5.987081
12	0.290262	0.257828	3.858466	3.427316	0.888259	6.14259
12.5	0.263814	0.220516	3.506888	2.931324	0.835876	5.271741
13	0.2915	0.236632	3.874927	3.145562	0.811773	5.722716
13.5	0.364102	0.287763	4.840031	3.825243	0.790334	7.184497
14	0.314398	0.256913	4.179315	3.415152	0.817156	6.51581
14.5	0.363324	0.294662	4.829679	3.916951	0.811017	7.184497
15	0.283852	0.232067	3.773257	3.084876	0.817563	5.691615
15.5	0.294324	0.241049	3.912463	3.204273	0.818991	5.816022
16	0.306578	0.248913	4.075362	3.308815	0.811907	6.033733
16.5	0.302089	0.244689	4.01569	3.252662	0.809988	5.987081
17	0.32901	0.265649	4.373549	3.531291	0.80742	6.484708
17.5	0.351562	0.290486	4.673328	3.861445	0.826273	6.87348
18	0.326474	0.267247	4.339833	3.552528	0.818586	6.531362
18.5	0.28308	0.233635	3.762994	3.105721	0.825332	5.847124
19	0.32049	0.263795	4.260286	3.506641	0.8231	6.51581
19.5	0.294236	0.239645	3.911299	3.185611	0.814464	5.940428
20	0.305843	0.25145	4.065589	3.342538	0.822154	6.018183
20.5	0.348013	0.299406	4.626157	3.980025	0.860331	7.04454
21	0.354172	0.306888	4.70802	4.079484	0.866497	6.422505
21.5	0.294241	0.245602	3.911355	3.264805	0.834699	5.878225
22	0.266826	0.231082	3.546931	3.071786	0.866041	5.769369
22.5	0.271982	0.228249	3.615465	3.034128	0.839208	5.753818
23	0.296133	0.246414	3.936507	3.275589	0.832106	5.987081
23.5	0.315964	0.259418	4.200124	3.448452	0.821036	6.453607
24	0.282837	0.234413	3.759769	3.116071	0.828793	5.831572

24.5	0.325686	0.263718	4.329367	3.505616	0.809729	6.422505
25	0.283372	0.229598	3.766881	3.052059	0.810235	5.520555
25.5	0.313766	0.257784	4.170904	3.426729	0.82158	6.34475
26	0.276887	0.226364	3.680668	3.009072	0.817534	5.442801
26.5	0.340379	0.274541	4.52467	3.649484	0.806575	6.593565
27	0.295472	0.235477	3.927724	3.130205	0.796951	5.629411
27.5	0.280741	0.232026	3.731902	3.084327	0.826476	5.59831
28	0.362071	0.302036	4.813024	4.014987	0.834192	6.87348
28.5	0.303661	0.253108	4.036578	3.364578	0.833523	6.064835
29	0.286525	0.244748	3.808793	3.253448	0.854194	6.002632
29.5	0.313317	0.268471	4.164937	3.568799	0.856868	6.500259
30	0.31481	0.264026	4.184787	3.509715	0.838684	6.422505
30.5	0.323513	0.276483	4.30048	3.675306	0.854627	6.640217
31	0.381226	0.333144	5.067658	4.428502	0.873875	7.682125
31.5	0.305071	0.265571	4.055324	3.530251	0.870523	6.220344
32	0.280533	0.249782	3.729141	3.320368	0.890384	6.033733
32.5	0.30202	0.265134	4.014765	3.524435	0.877868	6.360302
33	0.373501	0.33476	4.964974	4.449977	0.896274	8.086447
33.5	0.265067	0.257114	3.523552	3.417828	0.969995	5.80047
34	0.270172	0.23406	3.591413	3.111371	0.866336	5.660513
34.5	0.271627	0.23936	3.610747	3.18182	0.881208	5.940428
35	0.298664	0.262218	3.970159	3.485676	0.877969	6.562463
Mean	0.317272	0.269756	4.217518	3.585882	0.850612	6.502037
SD	0.035341	0.030983	0.469784	0.411864	0.034717	0.696969

Subject Sixteen-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.44298	0.364226	6.015779	4.946275	0.822217	9.217633
1	0.500567	0.385453	6.79783	5.23455	0.770033	9.649228
1.5	0.441958	0.348574	6.001905	4.733727	0.788704	8.832281
2	0.403358	0.336887	5.477695	4.57501	0.835207	8.662726
2.5	0.296949	0.258959	4.032645	3.516733	0.872066	6.658892
3	0.369531	0.322088	5.018322	4.374031	0.871612	8.354444
3.5	0.345041	0.295897	4.685743	4.018356	0.857571	7.506668
4	0.333073	0.286468	4.523214	3.890302	0.860075	7.552911
4.5	0.250844	0.220709	3.406523	2.997288	0.879867	5.826531
5	0.406669	0.356563	5.522663	4.842207	0.876789	9.078907
5.5	0.292065	0.246128	3.96632	3.342484	0.842717	6.489337
6	0.272286	0.221649	3.697717	3.01005	0.814029	6.0115
6.5	0.464589	0.381424	6.309228	5.179837	0.820994	9.664642
7	0.304168	0.244252	4.130671	3.317005	0.803018	5.949844
7.5	0.306138	0.254996	4.157431	3.462902	0.832943	6.998002
8	0.272601	0.22177	3.701984	3.011689	0.813534	5.795703
8.5	0.34716	0.273527	4.714519	3.714567	0.787899	7.059659

9	0.319792	0.249999	4.342853	3.395042	0.781754	6.396852
9.5	0.369271	0.287195	5.014793	3.900185	0.777736	7.028831
10	0.341675	0.27289	4.640024	3.705914	0.798684	6.982588
10.5	0.363913	0.291486	4.942028	3.958451	0.800977	7.167558
11	0.327001	0.26203	4.44076	3.558439	0.801313	6.504752
11.5	0.323162	0.264186	4.388627	3.587714	0.817503	6.581821
12	0.331626	0.265405	4.503569	3.604269	0.800314	6.628064
12.5	0.29645	0.245481	4.025869	3.33369	0.828067	6.27354
13	0.324131	0.262335	4.401784	3.562568	0.809346	6.813033
13.5	0.353859	0.288182	4.805492	3.91358	0.814397	7.275456
14	0.345339	0.285841	4.689789	3.881788	0.827711	7.121315
14.5	0.303968	0.24476	4.127959	3.323903	0.805217	5.934429
15	0.480624	0.423653	6.526992	5.753313	0.881465	10.00375
15.5	0.337682	0.286764	4.58581	3.894322	0.849212	6.150227
16	0.41811	0.356887	5.678033	4.846608	0.853571	8.693554
16.5	0.334091	0.284944	4.537033	3.869612	0.852895	7.090487
17	0.3135	0.26172	4.257405	3.554217	0.834832	6.458509
17.5	0.375024	0.309842	5.092912	4.207727	0.826193	7.691637
18	0.41541	0.329677	5.641373	4.477097	0.793618	8.030747
18.5	0.412627	0.324085	5.603578	4.401156	0.785419	7.830364
19	0.352117	0.291587	4.781835	3.95982	0.828096	7.028831
19.5	0.363986	0.305637	4.943021	4.150632	0.839695	7.506668
20	0.343316	0.279033	4.662321	3.789335	0.812757	6.813033
20.5	0.362675	0.293573	4.92521	3.986797	0.809467	7.429597
21	0.322776	0.26408	4.383377	3.586266	0.818152	6.658892
21.5	0.293637	0.240011	3.987663	3.259415	0.817375	5.965258
22	0.382058	0.312683	5.188447	4.24631	0.818416	7.922849
22.5	0.326205	0.2684	4.429951	3.644944	0.822796	6.859276
23	0.342628	0.278075	4.652978	3.776326	0.811593	6.797619
23.5	0.36276	0.293646	4.926373	3.987784	0.809477	7.229215
24	0.332986	0.265157	4.522033	3.600895	0.7963	6.535579
24.5	0.339121	0.271461	4.605344	3.68651	0.800485	6.581821
25	0.35208	0.281279	4.781332	3.81984	0.798907	6.982588
25.5	0.343684	0.277367	4.667308	3.766713	0.807042	6.828448
26	0.361704	0.300869	4.912035	4.085869	0.831808	7.660809
26.5	0.360521	0.297857	4.895969	4.044976	0.826185	7.105901
27	0.354317	0.293463	4.811718	3.985299	0.828249	7.090487
27.5	0.338389	0.276229	4.595405	3.75126	0.816307	6.890103
28	0.310981	0.255009	4.223194	3.46309	0.820017	6.211884
28.5	0.33761	0.279895	4.584824	3.801049	0.82905	7.260042
29	0.377326	0.301097	5.124175	4.088969	0.797976	7.537496
29.5	0.360791	0.294791	4.899637	4.00334	0.817069	7.460425
30	0.322537	0.267171	4.380126	3.628245	0.828342	6.720549

30.5	0.30492	0.25315	4.140892	3.437836	0.830216	6.181056
31	0.34943	0.284325	4.745351	3.861199	0.81368	7.075073
31.5	0.282083	0.232666	3.830753	3.159661	0.824815	5.888187
32	0.343817	0.272731	4.669122	3.703751	0.793244	6.843862
32.5	0.366028	0.287697	4.970744	3.906995	0.785998	7.167558
33	0.36755	0.303444	4.991416	4.12084	0.825585	7.614566
33.5	0.361458	0.288164	4.908684	3.913335	0.797227	7.044245
34	0.392213	0.30621	5.326352	4.158408	0.780724	7.922849
34.5	0.269323	0.22405	3.65747	3.04266	0.831903	5.502835
35	0.389422	0.317914	5.288449	4.317358	0.816375	7.753294
Mean	0.35011	0.286795	4.754577	3.894748	0.81964	7.171962
SD	0.048202	0.039543	0.654592	0.537005	0.024917	0.961358

Subject Seventeen-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.06964	0.076597	0.939924	1.033829	1.099908	3.910696
1	0.212947	0.189904	2.87413	2.563123	0.891791	5.151439
1.5	0.253054	0.216578	3.415457	2.923144	0.855857	5.229967
2	0.322632	0.26974	4.354539	3.640667	0.836063	6.345065
2.5	0.301463	0.265447	4.068828	3.582721	0.880529	6.046659
3	0.173382	0.161759	2.340127	2.183251	0.932963	3.800757
3.5	0.257933	0.221668	3.481298	2.991835	0.859402	5.214261
4	0.330851	0.265083	4.465477	3.577812	0.801216	6.125186
4.5	0.228982	0.196384	3.090557	2.650575	0.857637	4.758799
5	0.25815	0.221999	3.484231	2.996304	0.859961	5.245672
5.5	0.25487	0.215736	3.439964	2.911769	0.846453	4.962972
6	0.224806	0.188902	3.034197	2.549595	0.840286	4.350453
6.5	0.228771	0.194238	3.087702	2.621624	0.849054	4.523215
7	0.24326	0.200474	3.283268	2.705782	0.824112	4.601743
7.5	0.261752	0.210938	3.532846	2.847014	0.80587	4.978677
8	0.263955	0.217176	3.562589	2.931207	0.822774	5.214261
8.5	0.224573	0.179949	3.031049	2.428754	0.801291	4.350453
9	0.203137	0.161761	2.741727	2.18328	0.796316	3.989224
9.5	0.296808	0.232771	4.006001	3.141689	0.784246	5.512668
10	0.228362	0.179506	3.082182	2.422786	0.786062	4.334747
10.5	0.317507	0.255409	4.285371	3.447242	0.804421	6.125186
11						
11.5	0.206297	0.18079	2.784379	2.440104	0.876355	4.271925
12	0.226261	0.184634	3.053825	2.491987	0.816022	4.39757
12.5	0.1764	0.139813	2.380863	1.887046	0.792589	3.345294
13	0.196523	0.164384	2.652463	2.218685	0.836462	4.161985

13.5	0.208467	0.163628	2.813671	2.208476	0.784909	4.083457
14	0.241825	0.184709	3.263892	2.493011	0.763815	4.460392
14.5	0.209041	0.158327	2.821409	2.136932	0.757399	3.832168
15	0.342968	0.266755	4.629018	3.600372	0.777783	6.36077
15.5	0.157999	0.129217	2.132507	1.744028	0.81783	3.156827
16	0.191927	0.164767	2.590427	2.223847	0.858487	4.020635
16.5	0.203499	0.157678	2.746617	2.128174	0.774835	3.816463
17	0.276445	0.211931	3.731162	2.860412	0.766628	5.339906
17.5	0.189907	0.152162	2.563163	2.053722	0.801245	3.847873
18	0.172066	0.136931	2.322362	1.848146	0.795804	3.518056
18.5	0.236338	0.18355	3.189834	2.477356	0.776641	4.774504
19	0.229307	0.171977	3.094946	2.321157	0.749983	4.256219
19.5	0.207845	0.164087	2.805273	2.214665	0.789465	3.957812
20	0.23423	0.186349	3.161386	2.515141	0.795582	4.413275
20.5	0.248656	0.200221	3.356096	2.702374	0.805214	4.868738
21	0.155532	0.134254	2.099211	1.812012	0.863187	3.219649
21.5	0.207285	0.164725	2.797718	2.223286	0.794678	4.130575
22	0.214346	0.159402	2.893011	2.151434	0.743666	3.926402
22.5	0.208019	0.155323	2.807617	2.096378	0.746675	3.942107
23	0.205414	0.160265	2.772456	2.163089	0.780207	3.847873
23.5	0.335973	0.254475	4.534603	3.434631	0.757427	6.188009
24	0.217289	0.187092	2.932732	2.525169	0.86103	4.507509
24.5	0.117992	0.106945	1.592529	1.443436	0.90638	2.544308
25	0.307239	0.243146	4.146784	3.281721	0.79139	5.811074
25.5	0.17967	0.149875	2.424999	2.022854	0.834167	3.549467
26	0.248796	0.211164	3.357988	2.850064	0.848742	5.339906
26.5	0.130229	0.114344	1.757692	1.543296	0.878024	2.732776
27	0.297137	0.231939	4.010441	3.130471	0.78058	5.858191
27.5	0.144602	0.114564	1.951682	1.546268	0.792275	2.795598
28	0.198292	0.16157	2.676337	2.180703	0.814809	3.989224
28.5	0.213123	0.161688	2.876507	2.182291	0.75866	4.020635
29	0.22567	0.174735	3.045849	2.358383	0.774294	4.334747
29.5	0.282669	0.218078	3.815164	2.943387	0.771497	5.57549
30	0.164587	0.147862	2.221423	1.995681	0.89838	3.659406
30.5	0.161373	0.139987	2.178042	1.889392	0.867473	3.360999
31	0.126045	0.097481	1.701219	1.315691	0.773381	2.32443
31.5	0.198788	0.142846	2.683024	1.927984	0.718586	3.612289
32	0.234927	0.16683	3.170791	2.251688	0.710135	3.973518
32.5	0.312833	0.249773	4.22228	3.371168	0.798424	5.842485
33	0.25644	0.211131	3.461147	2.849621	0.823317	5.104322
33.5	0.262047	0.211406	3.536829	2.853337	0.80675	4.868738
34	0.193372	0.158146	2.609934	2.134482	0.81783	3.863579
34.5	0.21379	0.182981	2.885507	2.469687	0.855894	4.523215

35	0.218057	0.183974	2.943097	2.483087	0.843699	4.381864
Mean	0.225281	0.182898	3.0406	2.468556	0.817171	4.456295
SD	0.054283	0.042285	0.73266	0.570718	0.057047	0.938354

Subject Seventeen-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.273653	0.240544	3.670949	3.226811	0.879013	5.321193
1	0.387551	0.33769	5.198859	4.529986	0.871342	6.877097
1.5	0.287312	0.267944	3.854188	3.594374	0.932589	5.430106
2	0.302748	0.278315	4.061258	3.733492	0.919294	5.67905
2.5	0.304654	0.280703	4.086819	3.765528	0.921384	5.601255
3	0.335007	0.317736	4.493998	4.262319	0.948447	6.534798
3.5	0.289063	0.277032	3.877672	3.716281	0.95838	5.760318
4	0.286628	0.280689	3.845015	3.765341	0.979279	5.865759
4.5	0.259928	0.249426	3.486834	3.345957	0.959598	5.181161
5	0.285475	0.275366	3.829545	3.69394	0.96459	5.896877
5.5	0.227848	0.221519	3.056501	2.971601	0.972223	4.823303
6	0.298872	0.289039	4.009255	3.877354	0.967101	6.17694
6.5	0.240402	0.222627	3.224906	2.986465	0.926062	4.792185
7	0.271477	0.257248	3.641766	3.450891	0.947587	5.601255
7.5	0.262649	0.246659	3.523337	3.308842	0.939122	5.212279
8	0.242592	0.225395	3.254284	3.023594	0.929112	4.792185
8.5	0.286947	0.261839	3.849291	3.512469	0.912498	5.647933
9	0.247071	0.229915	3.314371	3.084224	0.930561	5.19672
9.5	0.245993	0.222575	3.299911	2.985766	0.904802	5.212279
10	0.274277	0.246426	3.679326	3.305715	0.898457	5.803523
10.5	0.244817	0.21904	3.284131	2.938343	0.894709	5.04417
11	0.243988	0.223137	3.273012	2.993304	0.914541	5.087807
11.5	0.258234	0.227408	3.464109	3.050602	0.880631	5.134484
12	0.219123	0.198623	2.939454	2.664454	0.906445	4.403209
12.5	0.248458	0.221079	3.332972	2.965698	0.889806	4.854421
13	0.234689	0.202132	3.148269	2.711529	0.861276	4.481005
13.5	0.253324	0.218734	3.398248	2.934238	0.863456	4.88554
14	0.256709	0.227906	3.44366	3.057279	0.887799	5.025571
14.5	0.220684	0.195891	2.960393	2.62781	0.887656	4.278737
15	0.259765	0.220846	3.484656	2.962569	0.850175	4.901098
15.5	0.268834	0.233154	3.606306	3.12767	0.867278	5.103366
16	0.32756	0.28623	4.394101	3.839667	0.873823	6.519239
16.5	0.153411	0.141649	2.057957	1.900176	0.923331	3.205163
17	0.214078	0.192842	2.871776	2.586903	0.900803	4.307255
17.5	0.272191	0.224385	3.651348	3.010041	0.824364	4.932217

18	0.250408	0.213114	3.359131	2.858841	0.851066	4.71439
18.5	0.223389	0.208653	2.996689	2.799004	0.934032	4.449886
19	0.25694	0.220687	3.44676	2.96044	0.858905	4.745508
19.5	0.230322	0.20711	3.089688	2.778299	0.899217	4.372091
20	0.348137	0.302729	4.670132	4.061001	0.869569	6.550356
20.5	0.172243	0.161165	2.310575	2.161966	0.935683	3.440622
21	0.200655	0.188179	2.691717	2.524355	0.937823	4.029792
21.5	0.21206	0.183923	2.844711	2.467264	0.867316	3.98792
22	0.253756	0.213264	3.404038	2.860861	0.840431	4.732802
22.5	0.256682	0.225759	3.443289	3.028477	0.87953	4.751232
23	0.295194	0.259917	3.959918	3.486689	0.880495	5.554578
23.5	0.29875	0.258913	4.007628	3.473217	0.866651	5.476783
24	0.204971	0.190507	2.749617	2.555577	0.92943	4.029792
24.5	0.253413	0.235119	3.399445	3.15403	0.927808	5.103366
25	0.172805	0.157821	2.318122	2.117105	0.913285	3.345194
25.5	0.250152	0.232118	3.355693	3.113774	0.927908	5.075307
26	0.270313	0.230727	3.626152	3.095113	0.853553	4.88554
26.5	0.276695	0.235889	3.711768	3.164362	0.852521	5.056689
27	0.232259	0.206482	3.115667	2.769877	0.889016	4.328023
27.5	0.361561	0.319456	4.85021	4.28538	0.883545	6.791926
28	0.168537	0.162294	2.260865	2.177114	0.962956	3.454107
28.5	0.277902	0.250485	3.727952	3.360167	0.901344	5.52346
29	0.214372	0.191538	2.875721	2.569406	0.893483	3.998674
29.5	0.210335	0.198623	2.821571	2.664454	0.944316	4.403209
30	0.230795	0.21484	3.096026	2.882004	0.930872	4.605477
30.5	0.253975	0.223054	3.406985	2.992189	0.878251	4.776626
31	0.286666	0.253577	3.845522	3.401642	0.884572	5.336752
31.5	0.240397	0.215076	3.224834	2.885172	0.894673	4.5588
32	0.288754	0.259853	3.873531	3.485838	0.899912	5.507901
32.5	0.157337	0.149929	2.110618	2.011241	0.952916	3.177873
33	0.174089	0.165895	2.33534	2.225423	0.952933	3.516344
33.5	0.327217	0.286421	4.389496	3.842231	0.875324	5.8502
34	0.270639	0.241936	3.63052	3.245478	0.893943	5.025571
34.5	0.261669	0.240816	3.510192	3.230462	0.920309	5.109522
35	0.250138	0.230385	3.355506	3.090536	0.921034	4.838862
Mean	0.255993	0.2314	3.434059	3.104146	0.905602	4.981067
SD	0.045449	0.040046	0.609687	0.537207	0.035883	0.818228

Subject Seventeen-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.342618	0.270667	4.652843	3.675729	0.789996	5.945297

1	0.324332	0.265815	4.404511	3.609829	0.819575	6.021912
1.5	0.25994	0.204106	3.530048	2.771805	0.785203	4.535588
2	0.311984	0.253447	4.236825	3.44188	0.812372	6.021912
2.5	0.271804	0.226199	3.691162	3.07184	0.832215	5.454964
3	0.246691	0.210998	3.350126	2.86541	0.855314	5.117859
3.5	0.255081	0.216285	3.464067	2.937198	0.847904	5.408995
4	0.276561	0.232028	3.755769	3.150994	0.838974	5.761422
4.5	0.257322	0.218073	3.494496	2.961481	0.84747	5.301734
5	0.256268	0.21602	3.480188	2.933603	0.842944	5.500932
5.5	0.221667	0.193995	3.010299	2.634503	0.875163	4.857369
6	0.245407	0.210786	3.332694	2.862532	0.858924	5.148505
6.5	0.250729	0.210729	3.404956	2.861751	0.840467	5.041245
7	0.241969	0.202914	3.285999	2.755628	0.838597	4.826723
7.5	0.24257	0.202711	3.294159	2.75286	0.835679	4.933984
8	0.212773	0.181728	2.889515	2.46791	0.854092	4.413004
8.5	0.263514	0.220307	3.57859	2.991824	0.836034	5.240442
9	0.244555	0.206183	3.321115	2.800017	0.843096	4.995276
9.5	0.290096	0.241953	3.939576	3.285784	0.834045	5.868682
10	0.201646	0.168361	2.738406	2.286383	0.834932	4.121869
10.5	0.238239	0.203788	3.235345	2.767494	0.855394	5.240442
11	0.248477	0.21018	3.374383	2.854294	0.845872	5.22512
11.5	0.267992	0.221242	3.639395	3.004527	0.825557	5.317057
12	0.244013	0.201686	3.313752	2.738942	0.826538	4.903338
12.5	0.205352	0.169285	2.788736	2.298926	0.824362	4.198483
13	0.27901	0.228518	3.789021	3.103333	0.819033	5.654161
13.5	0.203787	0.168896	2.767481	2.293651	0.828787	4.213806
14	0.26682	0.22354	3.623475	3.035728	0.837795	5.48561
14.5	0.22567	0.186173	3.064658	2.528281	0.82498	4.44365
15	0.277653	0.230491	3.770602	3.13013	0.830141	5.669485
15.5	0.268824	0.230931	3.650702	3.136098	0.85904	5.838037
16	0.152908	0.143433	2.076525	1.947854	0.938035	3.462982
16.5	0.240311	0.20084	3.263487	2.727452	0.835748	4.826723
17	0.230413	0.180833	3.129063	2.455755	0.784821	4.474296
17.5	0.208227	0.168447	2.827776	2.287552	0.808958	4.167838
18	0.219342	0.172776	2.978717	2.346337	0.7877	4.091223
18.5	0.254255	0.201836	3.452848	2.740984	0.793833	5.07189
19	0.301244	0.238342	4.090966	3.236742	0.791193	5.96062
19.5	0.326902	0.277608	4.439406	3.769986	0.849209	6.772736
20	0.15231	0.149875	2.068406	2.035337	0.984012	3.493629
20.5	0.19108	0.181074	2.594919	2.459032	0.947634	4.045254
21	0.207969	0.172839	2.824272	2.347197	0.83108	4.060577
21.5	0.225079	0.184233	3.056631	2.501935	0.818527	4.382359
22	0.214673	0.173421	2.915313	2.355098	0.807837	4.060577

22.5	0.237349	0.191415	3.223253	2.599459	0.806471	4.642848
23	0.243685	0.198594	3.309298	2.696949	0.814961	4.8114
23.5	0.284872	0.231015	3.868635	3.137237	0.810941	5.470286
24	0.400054	0.366103	5.432835	4.971771	0.915134	8.366321
24.5	0.070337	0.07753	0.955197	1.052882	1.102268	1.762137
25	0.199493	0.203131	2.709167	2.758576	1.018238	4.596879
25.5	0.260742	0.217158	3.540941	2.949054	0.832845	4.995276
26	0.197729	0.162427	2.685211	2.205801	0.821463	3.769441
26.5	0.260861	0.208932	3.542556	2.83735	0.800933	5.22512
27	0.272979	0.223776	3.707121	3.038937	0.819757	5.408995
27.5	0.242378	0.202154	3.291552	2.745303	0.834045	4.903338
28	0.252253	0.21201	3.425654	2.879148	0.840467	5.07189
28.5	0.252571	0.220042	3.429983	2.98822	0.871206	5.470286
29	0.160364	0.156581	2.177786	2.126407	0.976408	3.662181
29.5	0.254261	0.241923	3.452929	3.285368	0.951473	5.807391
30	0.100186	0.084789	1.360554	1.151455	0.846314	1.991981
30.5	0.202094	0.174836	2.744481	2.374312	0.865122	4.290421
31	0.149855	0.11739	2.035069	1.594181	0.783355	2.880711
31.5	0.206489	0.16641	2.804171	2.259889	0.805903	3.999285
32	0.255569	0.1988	3.470692	2.699754	0.777872	4.413004
32.5	0.260864	0.207186	3.542593	2.813638	0.794231	4.55091
33	0.237794	0.194374	3.229299	2.639646	0.817405	4.413004
33.5	0.271619	0.218323	3.68866	2.964876	0.803781	5.271089
34	0.233131	0.198014	3.16597	2.689073	0.849368	4.780755
34.5	0.184079	0.156399	2.499838	2.12394	0.849631	3.784764
35	0.229886	0.193043	3.121907	2.621571	0.839734	4.70414
Mean	0.239851	0.201371	3.257237	2.734663	0.844691	4.837449
SD	0.05061	0.041052	0.687297	0.5575	0.056551	0.979839

Subject Seventeen-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.257473	0.244536	3.475096	3.300488	0.949754	5.915684
1	0.273998	0.250458	3.698129	3.380409	0.914086	6.010083
1.5	0.202915	0.188816	2.738731	2.548434	0.930517	4.578362
2	0.233567	0.21816	3.152437	2.944494	0.934037	5.616753
2.5	0.273936	0.23435	3.697301	3.163003	0.85549	5.852751
3	0.285071	0.250581	3.84758	3.382077	0.879014	5.978617
3.5	0.210894	0.180847	2.846417	2.440874	0.857525	4.436763
4	0.343842	0.291524	4.640811	3.934682	0.847844	7.237273
4.5	0.270618	0.255197	3.652514	3.444378	0.943016	6.088749
5	0.227266	0.211484	3.067394	2.85439	0.930559	4.782893

5.5	0.253752	0.227361	3.424879	3.068682	0.895997	5.412221
6	0.250785	0.222945	3.384831	3.009076	0.888988	5.412221
6.5	0.211742	0.187624	2.857873	2.532349	0.886096	4.641294
7	0.280318	0.238208	3.78344	3.21508	0.849777	5.663953
7.5	0.255845	0.223019	3.45313	3.010067	0.871693	5.20769
8	0.234543	0.198065	3.165617	2.673264	0.844468	4.594095
8.5	0.227238	0.197827	3.067014	2.67006	0.870573	4.719961
9	0.275826	0.234606	3.722812	3.166456	0.850555	5.616753
9.5	0.298265	0.252877	4.02566	3.413062	0.847827	5.978617
10	0.196194	0.169406	2.648024	2.286456	0.863457	4.122099
10.5	0.20812	0.17613	2.808975	2.377215	0.846293	4.310897
11	0.281713	0.23421	3.80226	3.161116	0.831378	5.475154
11.5	0.224213	0.191446	3.026184	2.583935	0.853859	4.358097
12	0.303782	0.256898	4.100131	3.467333	0.845664	6.025816
12.5	0.320522	0.277844	4.326062	3.750041	0.866849	6.387681
13	0.305897	0.293465	4.128666	3.960883	0.959361	6.906876
13.5	0.182626	0.167317	2.464893	2.258262	0.91617	3.964767
14	0.230919	0.219873	3.116698	2.967606	0.952164	5.066091
14.5	0.262092	0.237174	3.537432	3.201128	0.90493	5.60102
15	0.2471	0.223177	3.335089	3.012207	0.903186	5.349289
15.5	0.228094	0.205477	3.07857	2.773314	0.900845	5.113291
16	0.241438	0.214916	3.25867	2.900709	0.890151	5.553821
16.5	0.262712	0.237849	3.545802	3.210228	0.90536	5.585287
17	0.216149	0.19752	2.917355	2.665919	0.913814	4.845827
17.5	0.253342	0.22821	3.419339	3.08014	0.9008	5.726885
18	0.219479	0.1986	2.962293	2.680485	0.904868	4.924492
18.5	0.20193	0.179564	2.725441	2.423563	0.889237	4.405297
19	0.240076	0.205102	3.240293	2.768247	0.85432	4.955959
19.5	0.240025	0.202485	3.239605	2.73293	0.8436	4.955959
20	0.273738	0.230324	3.694623	3.108671	0.841404	5.663953
20.5	0.242289	0.210717	3.270158	2.844037	0.869694	5.097558
21	0.228167	0.200657	3.079552	2.708252	0.87943	4.940226
21.5	0.277433	0.243209	3.744491	3.282571	0.87664	5.711152
22	0.245176	0.216126	3.309128	2.917032	0.881511	5.144757
22.5	0.229639	0.199429	3.099428	2.691684	0.868445	4.830093
23	0.209406	0.186863	2.826341	2.522083	0.892349	4.546896
23.5	0.250197	0.213674	3.376894	2.883942	0.854022	5.034625
24	0.233842	0.192722	3.156149	2.601162	0.824157	4.515429
24.5	0.236492	0.202124	3.191911	2.728048	0.854675	4.735694
25	0.220448	0.185703	2.975373	2.506417	0.842387	4.326631
25.5	0.291724	0.252973	3.93738	3.414362	0.867166	5.94715
26	0.236929	0.208855	3.197813	2.818906	0.881511	4.971692
26.5	0.216116	0.19025	2.916901	2.567793	0.880315	4.452497

27	0.247776	0.212513	3.344218	2.868273	0.857681	4.940226
27.5	0.24278	0.204119	3.276791	2.754975	0.840754	4.798626
28	0.260449	0.223606	3.515268	3.017991	0.858538	5.018891
28.5	0.226027	0.197785	3.05067	2.669496	0.875052	4.468229
29	0.271556	0.227955	3.665174	3.076687	0.839438	5.223423
29.5	0.345537	0.299713	4.663685	4.045212	0.867385	6.592212
30	0.316025	0.283446	4.265365	3.82565	0.89691	6.403413
30.5	0.301019	0.288786	4.062833	3.897725	0.959361	6.796743
31	0.218568	0.211632	2.949994	2.856386	0.968269	4.625562
31.5	0.195149	0.181248	2.633918	2.446289	0.928765	4.011967
32	0.252903	0.217264	3.413412	2.932392	0.859079	4.704227
32.5	0.343472	0.298386	4.635822	4.027297	0.868734	6.387681
33	0.283782	0.267936	3.83019	3.616315	0.944161	5.868484
33.5	0.296772	0.270943	4.005511	3.656898	0.912967	5.915684
34	0.267521	0.245144	3.610714	3.308699	0.916356	5.443688
34.5	0.255983	0.236156	3.454991	3.187383	0.922544	5.113291
35	0.237579	0.221998	3.206593	2.996291	0.934416	4.940226
Mean	0.252697	0.223534	3.410639	3.017028	0.885118	5.265004
SD	0.036462	0.032617	0.492122	0.440235	0.03592	0.723584

Subject Eighteen-Day One

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.016308	0.099149	0.215475	1.310072	6.07994	7.954711
1	0.139848	0.175299	1.847845	2.316268	1.253497	5.813058
1.5	0.282398	0.229457	3.73138	3.031863	0.812531	6.970349
2	0.289423	0.235493	3.824203	3.111623	0.813666	6.784118
2.5	0.316356	0.227591	4.180075	3.00721	0.719415	7.369415
3	0.271688	0.190408	3.58987	2.515905	0.700834	6.438261
3.5	0.337911	0.245906	4.464886	3.249214	0.727726	8.260661
4	0.212459	0.162583	2.807266	2.148239	0.765242	5.374086
4.5	0.249424	0.20388	3.29569	2.693907	0.817403	6.664398
5	0.271524	0.209347	3.587709	2.766141	0.771005	6.810722
5.5	0.296769	0.227012	3.921271	2.999555	0.764945	7.316206
6	0.310269	0.243797	4.099651	3.221347	0.785761	7.808387
6.5	0.221274	0.202605	2.923738	2.677067	0.915632	6.145613
7	0.221327	0.193543	2.924439	2.557322	0.874466	6.198822
7.5	0.283675	0.229473	3.748257	3.032082	0.808931	7.489134
8	0.313252	0.247108	4.139067	3.265085	0.788846	8.260661
8.5	0.257259	0.238038	3.399222	3.145247	0.925284	7.209789

9	0.174817	0.175309	2.309901	2.31639	1.002809	5.294272
9.5	0.213146	0.209921	2.816343	2.773726	0.984868	6.651096
10	0.290831	0.219553	3.842812	2.901004	0.754917	7.435926
10.5	0.312603	0.227836	4.130488	3.010448	0.728836	7.741876
11	0.243187	0.190557	3.21328	2.517867	0.783581	6.278635
11.5	0.270597	0.214721	3.575461	2.837157	0.793508	7.143278
12	0.264559	0.211747	3.495674	2.79786	0.800378	7.090069
12.5	0.197775	0.176482	2.613238	2.33189	0.892338	5.600223
13	0.214219	0.18643	2.830518	2.463344	0.87028	6.212124
13.5	0.249117	0.194585	3.291639	2.571089	0.781097	6.557981
14	0.300186	0.227047	3.966417	3.000018	0.756355	7.529041
14.5	0.270755	0.209305	3.57754	2.765596	0.773044	6.996953
15	0.270166	0.21747	3.569763	2.873482	0.80495	7.22309
15.5	0.239107	0.195027	3.159366	2.576929	0.815647	6.704305
16	0.242989	0.200833	3.210666	2.653644	0.826509	6.757514
16.5	0.217132	0.18951	2.869017	2.504038	0.872786	6.079102
17	0.288828	0.234501	3.816341	3.098516	0.811908	8.034524
17.5	0.253971	0.216906	3.355772	2.866023	0.854058	6.531376
18	0.278336	0.202251	3.677715	2.672392	0.726645	6.717607
18.5	0.260426	0.205184	3.441066	2.711138	0.787877	6.983652
19	0.338035	0.270868	4.466533	3.579034	0.8013	8.939074
19.5	0.170302	0.14345	2.250236	1.895432	0.842326	4.469537
20	0.269772	0.259734	3.564551	3.431921	0.962792	7.675365
20.5	0.243452	0.191558	3.216779	2.531094	0.786841	6.331844
21	0.246101	0.177881	3.25178	2.350377	0.722797	6.145613
21.5	0.268748	0.206985	3.55103	2.734936	0.770181	7.010256
22	0.284259	0.218995	3.755973	2.893633	0.770408	7.515738
22.5	0.283128	0.225931	3.741032	2.985279	0.797983	7.715271
23	0.245675	0.19708	3.246157	2.604063	0.802199	6.411657
23.5	0.233427	0.182954	3.084326	2.417414	0.783774	6.385053
24	0.226171	0.200551	2.988449	2.649925	0.886722	6.704305
24.5	0.252408	0.216452	3.335122	2.860032	0.857549	7.143278
25	0.257475	0.211159	3.402073	2.790083	0.820113	6.837327
25.5	0.311623	0.24118	4.117536	3.186759	0.773948	7.82169
26	0.270124	0.249689	3.569211	3.299195	0.924348	7.675365
26.5	0.173916	0.18012	2.297988	2.379966	1.035674	4.775487
27	0.243312	0.21576	3.21493	2.850888	0.886765	6.385053
27.5	0.243862	0.181181	3.2222	2.393981	0.742965	6.238729
28	0.28073	0.200601	3.709349	2.650583	0.714568	7.183184
28.5	0.252749	0.196902	3.33962	2.601708	0.779043	6.930442
29	0.265766	0.213976	3.511623	2.827307	0.805128	7.129975
29.5	0.264229	0.204348	3.491312	2.700093	0.773375	6.943745

30	0.267961	0.2044	3.540625	2.700778	0.762797	7.169882
30.5	0.251929	0.202428	3.328788	2.674724	0.803513	6.970349
31	0.26159	0.210526	3.456447	2.78172	0.804792	7.422623
31.5	0.265518	0.221517	3.508351	2.926952	0.834281	7.502437
32	0.224696	0.206286	2.968951	2.725694	0.918067	6.398354
32.5	0.247825	0.199723	3.274571	2.638988	0.805904	6.18552
33	0.232692	0.178014	3.07461	2.352132	0.765018	5.773152
33.5	0.240927	0.187523	3.183418	2.477787	0.778342	6.424959
34	0.259125	0.214528	3.42387	2.834605	0.827895	7.183184
34.5	0.263474	0.211079	3.481342	2.789037	0.801138	6.943745
35	0.261793	0.209861	3.459132	2.772937	0.801628	6.970349
Mean	0.253524	0.20713	3.349871	2.736854	0.895596	6.85348
SD	0.04688	0.026405	0.619431	0.348892	0.634468	0.792847

Subject Eighteen-Day Two

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.216726	0.201201	2.855075	2.650553	0.928366	5.427295
1	0.280183	0.251483	3.691035	3.312947	0.897566	6.863932
1.5	0.286234	0.233018	3.770741	3.069693	0.814082	7.076766
2	0.300877	0.246194	3.963644	3.24328	0.818257	7.422623
2.5	0.297049	0.24295	3.913222	3.200533	0.817877	7.635458
3	0.233611	0.207545	3.077507	2.734124	0.888421	6.158915
3.5	0.28669	0.246007	3.776754	3.240814	0.858095	7.58225
4	0.255728	0.225173	3.368875	2.966348	0.880516	7.076766
4.5	0.246093	0.209756	3.241943	2.763254	0.852345	6.983652
5	0.199028	0.192924	2.62193	2.541516	0.96933	5.733245
5.5	0.232378	0.202126	3.061272	2.662737	0.869814	6.37175
6	0.269932	0.205478	3.555987	2.706891	0.761221	7.103371
6.5	0.247893	0.208726	3.265653	2.749689	0.842003	7.276299
7	0.258832	0.232958	3.409767	3.068904	0.900034	7.422623
7.5	0.272894	0.232367	3.595013	3.061124	0.851492	7.183184
8	0.288717	0.250853	3.803462	3.304651	0.868853	8.194151
8.5	0.218281	0.23424	2.875552	3.085792	1.073113	6.637794
9	0.192606	0.211031	2.53732	2.780051	1.095664	5.75985
9.5	0.20772	0.215538	2.736437	2.839425	1.037636	5.906174
10	0.224801	0.193028	2.961445	2.542883	0.858663	5.719943
10.5	0.287247	0.245298	3.784094	3.231474	0.853962	7.515738

11	0.17954	0.155525	2.365197	2.048833	0.866242	4.575954
11.5	0.222769	0.203934	2.934679	2.68655	0.915449	6.025893
12	0.269801	0.198728	3.554259	2.617978	0.736575	6.637794
12.5	0.231549	0.188684	3.050346	2.485654	0.814876	6.105706
13	0.261756	0.209975	3.448286	2.766135	0.802177	6.837327
13.5	0.252905	0.20682	3.331687	2.724576	0.817777	6.651096
14	0.22913	0.184492	3.018484	2.430434	0.805184	6.172217
14.5	0.242742	0.200648	3.197798	2.643265	0.826589	6.637794
15	0.234728	0.231739	3.092224	3.052853	0.987268	6.557981
15.5	0.263767	0.205724	3.47477	2.710138	0.779947	6.238729
16	0.225881	0.189618	2.975679	2.497965	0.839461	5.852965
16.5	0.232645	0.194484	3.064789	2.562061	0.835967	6.225426
17	0.24007	0.203894	3.162593	2.686023	0.84931	6.597888
17.5	0.242401	0.204669	3.19331	2.696236	0.844339	6.770815
18	0.262413	0.236665	3.456943	3.117741	0.901878	7.449227
18.5	0.151953	0.129464	2.00178	1.705515	0.851999	4.296608
19	0.24014	0.217267	3.163524	2.862203	0.904751	6.797421
19.5	0.238494	0.188083	3.141834	2.47774	0.788628	6.25203
20	0.226975	0.191836	2.990096	2.527179	0.845183	6.0658
20.5	0.254922	0.196339	3.358256	2.586497	0.770191	6.611189
21	0.219359	0.207359	2.889758	2.731674	0.945295	5.932777
21.5	0.253302	0.201443	3.336914	2.653737	0.795267	6.478168
22	0.251224	0.209486	3.309532	2.759696	0.833863	6.810722
22.5	0.203581	0.167569	2.681904	2.207493	0.823107	5.413992
23	0.19986	0.192029	2.632882	2.529723	0.960819	5.706641
23.5	0.225253	0.170088	2.967407	2.240679	0.755097	5.959382
24	0.23509	0.186976	3.096991	2.463159	0.795339	6.518075
24.5	0.217832	0.183875	2.869638	2.422302	0.844114	5.959382
25	0.228956	0.183196	3.016193	2.413367	0.800137	6.119009
25.5	0.249722	0.21659	3.289757	2.853286	0.867324	6.890536
26	0.280098	0.231951	3.68992	3.055637	0.828104	6.757514
26.5	0.287501	0.217919	3.787439	2.870786	0.757976	6.890536
27	0.232969	0.186918	3.069052	2.462394	0.80233	6.105706
27.5	0.292254	0.275788	3.850058	3.633133	0.943657	7.901503
28	0.301362	0.244722	3.970044	3.223883	0.812052	6.850629
28.5	0.294179	0.241816	3.87541	3.185594	0.822002	7.196486
29	0.272515	0.227773	3.590016	3.000608	0.83582	6.877234

29.5	0.229316	0.205423	3.020927	2.706177	0.89581	6.238729
30	0.235351	0.196188	3.100438	2.584509	0.833595	6.358448
30.5	0.238871	0.192155	3.146807	2.531388	0.804431	6.544678
31	0.200384	0.167536	2.639784	2.207056	0.836075	5.586921
31.5	0.237866	0.202481	3.133566	2.667417	0.85124	6.451563
32	0.263395	0.210544	3.469875	2.773634	0.799347	6.677701
32.5	0.261778	0.193551	3.448568	2.549774	0.739372	6.464866
33	0.249232	0.203981	3.283295	2.68718	0.81844	6.970349
33.5	0.251444	0.25367	3.312438	3.341761	1.008852	7.129975
34	0.292336	0.235255	3.851127	3.099164	0.804742	6.730909
34.5	0.28191	0.219418	3.713786	2.890531	0.778325	7.023558
35	0.230261	0.197343	3.033374	2.59973	0.857042	6.518075
Mean	0.246076	0.209279	3.241717	2.756968	0.853867	6.535367
SD	0.030843	0.025378	0.406317	0.334325	0.07263	0.692249

Subject Eighteen-Day Three

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.073201	0.244156	0.958587	3.197287	3.335417	8.95332
1	0.379574	0.318859	4.970611	4.175538	0.840045	9.018387
1.5	0.367421	0.285582	4.811469	3.739769	0.777261	7.925249
2	0.358892	0.27355	4.699779	3.582203	0.762207	8.068398
2.5	0.315608	0.255356	4.132967	3.343941	0.80909	7.651965
3	0.298876	0.275673	3.913858	3.609999	0.922363	7.938263
3.5	0.329159	0.286999	4.310412	3.758318	0.871916	8.562913
4	0.299245	0.269337	3.918681	3.527033	0.900056	8.094425
4.5	0.266584	0.266792	3.490978	3.493704	1.000781	7.70402
5	0.292761	0.264464	3.833771	3.463222	0.903346	8.198533
5.5	0.295661	0.275379	3.871746	3.606148	0.931401	8.536885
6	0.156879	0.150611	2.054373	1.972292	0.960046	4.606795
6.5	0.237815	0.235295	3.114247	3.081239	0.989401	7.261559
7	0.241058	0.219569	3.156715	2.875302	0.910853	7.105396
7.5	0.249634	0.24257	3.26902	3.176513	0.971702	7.144436
8	0.250177	0.226151	3.276126	2.961497	0.903963	6.728003
8.5	0.270077	0.232305	3.536719	3.042087	0.860144	7.053342
9	0.286003	0.247134	3.74528	3.236276	0.864095	7.886209
9.5	0.202837	0.183169	2.656195	2.398636	0.903035	6.012258
10	0.229428	0.225097	3.004413	2.947705	0.981125	7.261559
10.5	0.248828	0.227138	3.25846	2.974426	0.912832	7.105396
11	0.306774	0.275214	4.017282	3.603999	0.897124	8.823183
11.5	0.182786	0.176238	2.393625	2.307882	0.964178	5.296513
12	0.219407	0.241229	2.873188	3.158954	1.09946	6.832112

12.5	0.274124	0.256562	3.589717	3.359747	0.935936	7.599911
13	0.264104	0.240057	3.458503	3.1436	0.908948	7.430735
13.5	0.25101	0.229733	3.287031	3.008411	0.915237	6.975261
14	0.294036	0.26742	3.850471	3.501935	0.909482	8.302643
14.5	0.184899	0.174467	2.421295	2.284692	0.943583	5.205418
15	0.202965	0.209528	2.657881	2.743817	1.032333	6.324584
15.5	0.244529	0.230597	3.202165	3.019724	0.943026	7.053342
16	0.263829	0.225112	3.454907	2.947895	0.853249	7.183477
16.5	0.297911	0.256159	3.90122	3.354467	0.859851	8.263601
17	0.186113	0.173582	2.437196	2.273095	0.932668	5.413635
17.5	0.239378	0.245168	3.134716	3.210538	1.024188	7.001288
18	0.283607	0.240169	3.713896	3.145066	0.846837	7.313613
18.5	0.249623	0.21347	3.268869	2.795437	0.855169	6.597867
19	0.235262	0.2256	3.080816	2.954282	0.958928	6.5328
19.5	0.282391	0.236758	3.697981	3.100409	0.838406	7.33964
20	0.27278	0.240603	3.572117	3.150759	0.882042	7.066355
20.5	0.245928	0.202102	3.220483	2.646568	0.821792	6.246502
21	0.240926	0.203227	3.154989	2.661312	0.843525	6.545814
21.5	0.233685	0.217646	3.060163	2.850131	0.931365	6.428692
22	0.25411	0.209365	3.327637	2.741683	0.823913	6.519786
22.5	0.288906	0.263061	3.783293	3.444852	0.910543	7.70402
23	0.285696	0.226208	3.741261	2.962245	0.791777	6.858139
23.5	0.309086	0.246641	4.047556	3.229817	0.797967	7.834155
24	0.195689	0.163814	2.5626	2.145189	0.837115	5.10131
24.5	0.251971	0.232293	3.299618	3.041936	0.921906	6.871152
25	0.268332	0.229469	3.513873	3.004957	0.855169	7.092382
25.5	0.254468	0.212191	3.332316	2.77869	0.833861	6.480746
26	0.216842	0.169095	2.839598	2.214338	0.779807	5.387608
26.5	0.278073	0.244074	3.641428	3.196212	0.877736	7.717032
27	0.348136	0.313671	4.558918	4.107591	0.901001	8.693048
27.5	0.292924	0.252091	3.835916	3.301192	0.860601	7.456762
28	0.20029	0.215662	2.622841	2.824147	1.076751	5.882123
28.5	0.231626	0.208545	3.033195	2.730947	0.900353	6.350611
29	0.249954	0.208967	3.273213	2.736477	0.836022	6.688963
29.5	0.236366	0.203631	3.09527	2.666602	0.861509	6.558826
30	0.2513	0.210762	3.290838	2.759982	0.838687	6.962247
30.5	0.261632	0.224409	3.426128	2.93869	0.857729	6.988274
31	0.278066	0.226393	3.641346	2.964668	0.814168	7.235531
31.5	0.232685	0.190702	3.047063	2.497294	0.819574	6.142394
32	0.222556	0.184663	2.91443	2.418201	0.829734	6.090339
32.5	0.253898	0.221313	3.32486	2.898153	0.871662	6.871152
33	0.27122	0.226356	3.551694	2.96418	0.834582	6.975261
33.5	0.235165	0.197891	3.079544	2.59143	0.841498	6.116366
34	0.254023	0.211562	3.326497	2.770453	0.832844	6.79307
34.5	0.260108	0.219454	3.406178	2.873801	0.843702	6.949233
35	0.208011	0.172339	2.723949	2.256827	0.828513	5.465689
Mean	0.257099	0.229578	3.366771	3.006377	0.922673	7.034007
SD	0.048354	0.034061	0.63321	0.446034	0.300429	0.956475

Subject Eighteen-Day Four

TIME (min)	VO2 (L)	VCO2 (L)	VO2 (Kg)	VCO2 (Kg)	RER	VE (stpd)
0.5	0.036677	0.13191	0.486079	1.748203	3.596543	6.691962
1	0.190484	0.195127	2.524486	2.586014	1.024373	7.511926
1.5	0.168127	0.178048	2.228187	2.359674	1.059011	5.72652
2	0.185985	0.197165	2.464865	2.613031	1.060111	6.017475
2.5	0.274821	0.234382	3.642209	3.106269	0.852853	7.644177
3	0.256446	0.224715	3.398677	2.978146	0.876266	7.564826
3.5	0.246305	0.225699	3.26428	2.99119	0.91634	7.697078
4	0.22267	0.207544	2.951044	2.750587	0.932073	7.009367
4.5	0.233056	0.210661	3.0887	2.791894	0.903906	7.207745
5	0.213492	0.22074	2.829412	2.925475	1.033952	7.088718
5.5	0.22943	0.205236	3.040632	2.720001	0.894551	7.247421
6	0.20298	0.176981	2.690101	2.345526	0.87191	6.863889
6.5	0.174825	0.175276	2.316959	2.322929	1.002577	6.797763
7	0.185424	0.17838	2.457432	2.364074	0.96201	6.982916
7.5	0.183447	0.183758	2.431224	2.435352	1.001698	6.810988
8	0.196872	0.200019	2.609145	2.650856	1.015986	7.234195
8.5	0.220117	0.208936	2.917217	2.769028	0.949202	7.353222
9	0.196476	0.178663	2.603894	2.367823	0.909339	6.506809
9.5	0.197864	0.171059	2.622297	2.267043	0.864526	6.943241
10	0.200505	0.204419	2.6573	2.709163	1.019517	7.406123
10.5	0.234441	0.214257	3.107044	2.839553	0.913908	8.173186
11	0.319955	0.375317	4.240364	4.974084	1.173032	12.25978
11.5	0.310708	0.369196	4.117818	4.892957	1.18824	11.33401
12	0.152168	0.192849	2.016689	2.555833	1.267341	6.136502
12.5	0.091794	0.121956	1.216541	1.616285	1.328591	4.046917
13	0.195129	0.190393	2.58605	2.523281	0.975728	6.348106
13.5	0.227988	0.184275	3.021532	2.442205	0.808267	6.903565
14	0.232875	0.189584	3.086299	2.512554	0.814099	7.115169
14.5	0.267083	0.248702	3.539656	3.296051	0.931178	8.887348
15	0.140959	0.14436	1.868129	1.913204	1.024128	4.708179
15.5	0.223732	0.214155	2.965116	2.8382	0.957197	7.220971
16	0.325042	0.293223	4.307783	3.886088	0.902109	10.79178
16.5	0.233478	0.276998	3.094287	3.671064	1.1864	8.133511
17	0.140679	0.145854	1.864417	1.933007	1.036789	4.655277
17.5	0.125745	0.142347	1.6665	1.886523	1.132027	4.245296
18	0.196123	0.181054	2.599215	2.399516	0.92317	5.501692
18.5	0.260723	0.197132	3.455368	2.612598	0.756098	6.744862
19	0.232383	0.191736	3.079771	2.541078	0.825087	6.982916

19.5	0.22262	0.194039	2.950387	2.5716	0.871614	6.969691
20	0.182706	0.155549	2.42141	2.061493	0.851361	6.229079
20.5	0.190291	0.189975	2.521925	2.517735	0.998339	6.58616
21	0.202786	0.162093	2.687528	2.148216	0.799328	6.321656
21.5	0.227932	0.210035	3.020785	2.783602	0.921483	6.969691
22	0.195209	0.162262	2.587104	2.150455	0.831221	6.057151
22.5	0.183624	0.161256	2.433569	2.137125	0.878185	6.520033
23	0.178878	0.153058	2.370676	2.028474	0.855652	6.348106
23.5	0.199238	0.184402	2.6405	2.443882	0.925538	6.361331
24	0.220828	0.187187	2.926635	2.480787	0.847659	6.877115
24.5	0.204892	0.177378	2.715442	2.350788	0.865711	6.58616
25	0.194006	0.171931	2.571163	2.278606	0.886216	7.088718
25.5	0.18906	0.173699	2.505613	2.302029	0.918749	6.863889
26	0.208875	0.207923	2.768221	2.755606	0.995443	7.379673
26.5	0.25327	0.219094	3.356586	2.90365	0.865061	7.736754
27	0.265058	0.247456	3.512811	3.279542	0.933595	7.80288
27.5	0.234848	0.199746	3.11244	2.647236	0.850534	6.691962
28	0.192736	0.186156	2.55433	2.467134	0.965863	6.652286
28.5	0.216836	0.194424	2.873727	2.576709	0.896644	7.4987
29	0.219712	0.211169	2.911851	2.79863	0.961117	7.419348
29.5	0.187693	0.171569	2.487496	2.273809	0.914096	5.9778
30	0.230707	0.229539	3.057563	3.042086	0.994938	7.19452
30.5	0.237206	0.197546	3.143699	2.618081	0.832803	7.19452
31	0.17073	0.140953	2.262683	1.868056	0.825593	5.528142
31.5	0.152977	0.139286	2.0274	1.845964	0.910508	4.985908
32	0.203242	0.186573	2.693568	2.472658	0.917986	6.771313
32.5	0.242478	0.212427	3.213565	2.815301	0.876068	7.749979
33	0.247556	0.22434	3.280866	2.973181	0.906218	7.432574
33.5	0.268795	0.238915	3.562348	3.166345	0.888837	7.115169
34	0.237592	0.178994	3.148809	2.372211	0.753368	6.374556
34.5	0.26641	0.230669	3.530732	3.057065	0.865844	8.847672
35	0.130633	0.141201	1.731282	1.871341	1.080899	4.761079
Mean	0.209806	0.197471	2.780563	2.617082	0.979666	6.962701
SD	0.047597	0.044155	0.630806	0.58519	0.33633	1.345242

Appendix B2: Summary of Daily RMR Measurements

	Day1	Day2	Day3	Day4	Mean across days	Sd across days	CV
S1							
Mean VO_2 L/min	0.2109	0.1757	0.2011	0.1888	0.1941	0.0153	0.0786
Mean VO_2 ml kg^{-1} min^{-1}	3.6559	3.0875	3.5065	3.3096	3.3899	0.2465	0.0727
Mean RMR kcal/min	1.0546	0.8635	0.9654	0.9297	0.9533	0.0796	0.0835
S2							
Mean VO_2 L/min	0.1958	0.2300	0.2239	0.2351	0.2212	0.0175	0.0793
Mean VO_2 ml kg^{-1} min^{-1}	2.8541	3.3717	3.2775	3.4471	3.2376	0.2649	0.0818
Mean RMR kcal/min	0.9194	1.0795	1.0738	1.1124	1.0463	0.0863	0.0825
S3							
Mean VO_2 L/min	0.2838	0.3003	0.3036	0.2890	0.2942	0.0093	0.0316
Mean VO_2 ml kg^{-1} min^{-1}	3.1223	3.3031	3.3731	3.1938	3.2481	0.1117	0.0344
Mean RMR kcal/min	1.3779	1.4530	1.4402	1.3848	1.4140	0.0381	0.0270
S4							
Mean VO_2 L/min	0.2831	0.2843	0.2840	0.2681	0.2799	0.0079	0.0281
Mean VO_2 ml kg^{-1} min^{-1}	3.6207	3.6360	3.6313	3.4108	3.5747	0.1094	0.0306
Mean RMR kcal/min	1.3617	1.3562	1.2903	1.4245	1.3582	0.0548	0.0404
S5							
Mean VO_2 L/min	0.1963	0.2025	0.1733	0.1779	0.1875	0.0141	0.0753
Mean VO_2 ml kg^{-1} min^{-1}	2.9795	3.0199	2.6573	2.5494	2.8015	0.2336	0.0834
Mean RMR kcal/min	0.9298	0.9633	0.8318	0.8532	0.8945	0.0622	0.0696
S6							
Mean VO_2 L/min	0.2911	0.2630	0.2715	0.3001	0.2814	0.0172	0.0609
Mean VO_2 ml kg^{-1} min^{-1}	3.5374	3.1952	3.2989	3.6465	3.4195	0.2084	0.0609
Mean RMR kcal/min	1.4105	1.2818	1.3018	1.4364	1.3576	0.0772	0.0568
S7							
Mean VO_2 L/min	0.3110	0.2808	0.2875	0.3277	0.3018	0.0216	0.0716
Mean VO_2 ml kg^{-1} min^{-1}	3.9361	3.5551	3.6255	4.1486	3.8163	0.2765	0.0725
Mean RMR kcal/min	1.4850	1.3442	1.3779	1.4597	1.4167	0.0665	0.0470

S8							
Mean VO_2 L/min	0.2035	0.2109	0.2259	0.2116	0.2130	0.0094	0.0440
Mean VO_2 ml kg^{-1} min^{-1}	3.5698	3.7215	3.9634	3.7659	3.7551	0.1622	0.0432
Mean RMR kcal/min	1.0215	1.0800	1.0217	1.0458	1.0422	0.0276	0.0265
S9							
Mean VO_2 L/min	0.2085	0.2334	0.2348	0.2331	0.2274	0.0126	0.0556
Mean VO_2 ml kg^{-1} min^{-1}	3.1593	3.4761	3.5645	3.5679	3.4419	0.1932	0.0561
Mean RMR kcal/min	0.9944	1.1228	1.1117	1.1347	1.0909	0.0650	0.0596
S10							
Mean VO_2 L/min	0.2231	0.2232	0.2502	0.2440	0.2351	0.0141	0.0598
Mean VO_2 ml kg^{-1} min^{-1}	3.8068	3.8082	4.2400	4.1359	3.9977	0.2237	0.0560
Mean RMR kcal/min	1.0715	1.2012	1.1851	1.1805	1.1596	0.0594	0.0512
S11							
Mean VO_2 L/min	0.2113	0.2067	0.2105	0.2045	0.2083	0.0032	0.0153
Mean VO_2 ml kg^{-1} min^{-1}	3.6301	3.5350	3.5925	3.5857	3.5858	0.0391	0.0109
Mean RMR kcal/min	1.0010	0.9804	1.0231	0.9664	0.9927	0.0248	0.0249
S12							
Mean VO_2 L/min	0.2565	0.2443	0.2310	0.2480	0.2450	0.0106	0.0433
Mean VO_2 ml kg^{-1} min^{-1}	4.1636	3.9554	3.8181	3.9901	3.9818	0.1421	0.0357
Mean RMR kcal/min	1.2314	1.1652	1.1076	1.1858	1.1725	0.0514	0.0438
S13							
Mean VO_2 L/min	0.2149	0.2159	0.2123	0.2176	0.2152	0.0022	0.0102
Mean VO_2 ml kg^{-1} min^{-1}	3.5810	3.6289	3.5386	3.5723	3.5802	0.0373	0.0104
Mean RMR kcal/min	1.0463	1.0343	1.0278	1.0590	1.0418	0.0137	0.0132
S14							
Mean VO_2 L/min	0.2128	0.2005	0.2216	0.2278	0.2157	0.0118	0.0549
Mean VO_2 ml kg^{-1} min^{-1}	3.8419	3.6927	4.0291	4.1422	3.9265	0.1991	0.0507
Mean RMR kcal/min	1.0356	0.9534	1.0722	1.0907	1.0380	0.0609	0.0586
S15							
Mean VO_2 L/min	0.2158	0.1872	0.1868	0.1952	0.1963	0.0136	0.0693
Mean VO_2 ml kg^{-1} min^{-1}	3.5972	3.1341	3.1392	3.2800	3.2876	0.2172	0.0661
Mean RMR kcal/min	1.0453	0.9027	0.8861	0.9546	0.9472	0.0716	0.0756

S16							
Mean VO2 L/min	0.3034	0.3107	0.3068	0.3482	0.3173	0.0209	0.0657
Mean VO2 ml kg^{-1} min^{-1}	3.8402	3.9331	3.8685	4.4079	4.0124	0.2665	0.0664
Mean RMR kcal/min	1.4621	1.4792	1.4806	1.6713	1.5233	0.0990	0.0650
S17							
Mean VO_2 L/min	0.2185	0.2461	0.2367	0.2315	0.2332	0.0115	0.0494
Mean VO_2 ml kg^{-1} min^{-1}	0.0223	0.0220	0.0223	0.0233	0.0225	0.0006	0.0257
Mean RMR kcal/min	1.0352	1.2025	1.1454	1.1178	1.1252	0.0696	0.0619
S18							
Mean VO_2 L/min	0.2544	0.2433	0.2520	0.2130	0.2407	0.0191	0.0792
Mean VO_2 ml kg^{-1} min^{-1}	3.3642	3.2231	3.2850	2.7932	3.1664	0.2554	0.0807
Mean RMR kcal/min	1.2199	1.1730	1.2275	1.0502	1.1676	0.0819	0.0702
					Group mean across subjects	Sd	CV
Group Mean VO_2 L/min					0.2393	0.0129	0.0538
Group Mean VO_2 ml kg^{-1} min^{-1}					3.3470	0.1771	0.0529
Group Mean RMR kcal/min					1.1523	0.0605	0.0525
	DAY 1	DAY 2	DAY 3	DAY 4	Group mean across days	Sd across days	CV
Group Mean VO_2 L/min	0.2413	0.2373	0.2415	0.2440	0.2410	0.0028	0.0115
Sd L/min	0.0403	0.0399	0.0396	0.0496			
Group Mean VO_2 ml kg^{-1} min^{-1}	3.3490	3.2917	3.3623	3.3775	3.3451	0.0375	0.0112
Sd ml kg^{-1} min^{-1}	0.3506	0.2917	0.3771	0.4992			
Group Mean RMR kcal/min	1.1502	1.1465	1.1428	1.1699	1.1523	0.0121	0.0105
Sd RMR kcal/min	0.1900	0.1836	0.1818	0.2195			

Appendix B3: Resting Heart Rate Measurement

Subject	Day 1	Day 2	Day 3	Day 4
1	76	64	63	59
2	57	58	58	59
3	58	56	56	54
4	65	69	67	74
5	68	68	63	64
6	71	50	54	49
7	68	64	64	75
8	63	66	61	65
9	55	66	61	66
10	75	68	82	78
11	64	70	66	70
12	61	61	56	56
13	62	64	69	67
14	59	61	60	63
15	55	50	48	53
16	47	N/A	47	44
17	50	49	49	53
18	63	60	62	60

APPENDIX C

STATISTICAL TREATMENT

Appendix C1: Resting Metabolic Rate (ml kg^{-1} min^{-1})

RESTING METABOLIC RATE (ml kg^{-1} min^{-1})

R E L I A B I L I T Y A N A L Y S I S - S C A L E (P A R A L L E L)

		Mean	Std Dev	Cases
1.	DAY1	3.3559	.8703	18.0
2.	DAY2	3.3012	.8374	18.0
3.	DAY3	3.3643	.8819	18.0
4.	DAY4	3.3945	.9394	18.0

Correlation Matrix

	DAY1	DAY2	DAY3	DAY4
DAY1	1.0000			
DAY2	.9492	1.0000		
DAY3	.9464	.9747	1.0000	
DAY4	.9338	.9506	.9600	1.0000

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	51.0309	17	3.0018		
Within People	2.0691	54	.0383		
Between Measures	.0817	3	.0272	.6986	.5572
Residual	1.9875	51	.0390		
Total	53.1000	71	.7479		

Intraclass Correlation Coefficient

Stability Reliability = .9743

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$$\text{Stability reliability} = \frac{\text{MS between people} - \text{MS residual}}{\text{MS between people} + \text{MS residual}}$$

$$\text{Stability reliability} = \frac{3.0018 - .0390}{3.0018 + .0309} = .9743$$

Appendix C2: Resting Metabolic Rate (L/min)

RESTING METABOLIC RATE (L O_2/min)

Correlation Matrix

	DAY1	DAY2	DAY3	DAY4
DAY1	1.0000			
DAY2	.8581	1.0000		
DAY3	.8695	.9324	1.0000	
DAY4	.8516	.8721	.8811	1.0000

N of Cases = 18.0

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	.2411	.2386	.2428	.0041	1.0173	.0000

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	.1013	17	.0060		
Within People	.0115	54	.0002		
Between Measures	.0002	3	.0001	.2588	.8547
Residual	.0113	51	.0002		
Total	.1128	71	.0016		
Grand Mean	.2411				

Intraclass Correlation Coefficient

Stability Reliability = .9355

$$\text{Stability reliability} = \frac{\text{MS between people} - \text{MS residual}}{\text{MS between people} + \text{MS residual}}$$

$$\text{Stability reliability} = \frac{.006 - .0002}{.006 + .0002} = .9355$$

Appendix C3: Resting Metabolic Rate (kcal/min)

RESTING METABOLIC RATE (kcal/min)

Correlation Matrix

	DAY1	DAY2	DAY3	DAY4
DAY1	1.0000			
DAY2	.8283	1.0000		
DAY3	.8692	.9445	1.0000	
DAY4	.8812	.9153	.9286	1.0000

N of Cases = 18.0

Inter-item Correlations	Mean	Minimum	Maximum	Range	Max/Min	Variance
	.8945	.8283	.9445	.1161	1.1402	.0017

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	2.3520	17	.1384		
Within People	.2240	54	.0041		
Between Measures	.0079	3	.0026	.6199	.6053
Residual	.2161	51	.0042		
Total	2.5760	71	.0363		
Grand Mean	1.1523				

Intraclass Correlation Coefficient

Stability Reliability = .9411

$$\text{Stability reliability} = \frac{\text{MS between people} - \text{MS residual}}{\text{MS between people} + \text{MS residual}}$$

$$\text{Stability reliability} = \frac{.1384 - .0042}{.1384 + .0042} = .9411$$

Appendix C4: Respiratory Exchange Ratio

RESPIRATORY EXCHANGE RATIO

R E L I A B I L I T Y A N A L Y S I S - S C A L E (P A R A L L E L)

		Mean	Std Dev	Cases
1.	DAY1	.8262	.0537	18.0
2.	DAY2	.8162	.0461	18.0
3.	DAY3	.8238	.0370	18.0
4.	DAY4	.8389	.0531	18.0

Correlation Matrix

	DAY1	DAY2	DAY3	DAY4
DAY1	1.0000			
DAY2	.6127	1.0000		
DAY3	-.1132	-.3289	1.0000	
DAY4	.2550	.3707	.1185	1.0000

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	.0612	17	.0036		
Within People	.1000	54	.0019		
Between Measures	.0048	3	.0016	.8588	.4685
Residual	.0952	51	.0019		
Total	.1611	71	.0023		

Intraclass Correlation Coefficient

Stability Reliability = .3091

****

$$\text{Stability reliability} = \frac{\text{MS between people - MS residual}}{\text{MS between people + MS residual}}$$

$$\text{Stability reliability} = \frac{.0036 - .0019}{.0036 + .0019} = .3091$$

Appendix C5: Body Mass

BODY MASS

Correlation Matrix

	DAY1	DAY2	DAY3	DAY4
DAY1	1.0000			
DAY2	.9949	1.0000		
DAY3	.9720	.9717	1.0000	
DAY4	.9940	.9983	.9747	1.0000

N of Cases = 18.0

Analysis of Variance

Source of Variation	Sum of Sq.	DF	Mean Square	F	Prob.
Between People	7261.6232	17	427.1543		
Within People	93.0917	54	1.7239		
Between Measures	5.2027	3	1.7342	1.0063	.3976
Residual	87.8890	51	1.7233		
Total	7354.7149	71	103.5875		
Grand Mean	68.0799				

Intraclass Correlation Coefficient

Stability Reliability = .9920

****

$$\text{Stability reliability} = \frac{\text{MS between people} - \text{MS residual}}{\text{MS between people} + \text{MS residual}}$$

$$\text{Stability reliability} = \frac{427.1543 - 1.7233}{427.1543 + 1.7233} = .99196$$

APPENDIX D

PROCEDURES

Appendix D1: Personal Communication with Dr. Huszcza on 10/10/01

PERSONAL COMMUNICATION

From: Ahuszcza@aol.com

Date: Wednesday, October 10, 2001 6:04 pm

To: athompson@lvcm.com

Subject: Re: RMR measurements

Dear Amy:

Very smart choice of the subject for your thesis. I don't remember which model is being used in Dr. Golding's lab, but, in general, the accuracy of all Vacumed's metabolic units oscillates within +/-3% providing you measure and input daily values of room temperature, relative humidity and barometric pressure and they are measured accurately.

With best wishes, Andrew

Appendix D2: Personal Communication with Dr. Huszcza on 10/14/01

PERSONAL COMMUNICATION

From: Ahuszcza@aol.com

Date: Sunday, October 14, 2001 2:12 PM

To: athompson@lvcm.com

Subject: Re: RMR measurements

Dear Amy:

Assuming thorough calibration of the instrument, the +/-3% accuracy implies that, if you get, say, the VO2 reading of 300mL/min, the real value is somewhere between 291 and 309. This means that your instrument is good enough to yield reliable measurements.

Good luck, Andrew.

Table D3: Percent Fat Estimates For Four Sites-Men

	Age to last year								
Sum of 4 skinfolds	18-22	23-27	28-32	33-37	38-42	43-47	48-52	53-57	58
13-17	1.7	2.5	3.3	4.1	4.9	5.6	6.4	7.2	8.0
18-22	3.1	3.9	4.6	5.4	6.2	7.0	7.8	8.6	9.4
23-27	4.4	5.2	6.0	6.8	7.6	8.4	9.2	10.0	10.7
28-32	5.7	6.5	7.3	8.1	8.9	9.7	10.5	11.3	12.1
33-37	7.0	7.8	8.6	9.4	10.2	11.0	11.8	12.6	13.4
38-42	8.3	9.1	9.9	10.7	11.5	12.3	13.1	13.9	14.6
43-47	9.6	10.3	11.1	11.9	12.7	13.5	14.3	15.1	15.9
48-52	10.8	11.6	12.4	13.2	13.9	14.7	15.5	16.3	17.1
53-57	12.0	12.8	13.6	14.4	15.1	15.9	16.7	17.5	18.3
58-62	13.1	13.9	14.7	15.5	16.3	17.1	17.9	18.7	19.5
63-67	14.3	15.1	15.9	16.7	17.5	18.2	19.0	19.8	20.6
68-72	15.4	16.2	17.0	17.8	18.6	19.4	20.2	21.0	21.8
73-77	16.5	17.3	18.1	18.9	19.7	20.5	21.3	22.1	22.8
78-82	17.6	18.4	19.2	20.0	20.7	21.5	22.3	23.1	23.9
83-87	18.6	19.4	20.2	21.0	21.8	22.6	23.4	24.2	25.0
88-92	19.6	20.4	21.2	22.0	22.8	23.6	24.4	25.2	26.0
93-97	20.6	21.4	22.2	23.0	23.8	24.6	25.4	26.2	27.0
98-102	21.6	22.4	23.2	24.0	24.8	25.6	26.4	27.1	27.9
103-107	22.5	23.3	24.1	24.9	25.7	26.5	27.3	28.1	28.9
108-112	23.5	24.2	25.0	25.8	26.6	27.4	28.2	29.0	29.8
113-117	24.3	25.1	25.9	26.7	27.5	28.3	29.1	29.9	30.7
118-122	25.2	26.0	26.8	27.6	28.4	29.2	30.0	30.8	31.6
123-127	26.0	26.8	27.6	28.4	29.2	30.0	30.8	31.6	32.4
128-132	26.9	27.7	28.4	29.2	30.0	30.8	31.6	32.4	33.2
133-137	27.7	28.4	29.2	30.0	30.8	31.6	32.4	33.2	34.0
138-142	28.4	29.2	30.0	30.8	31.6	32.4	33.2	34.0	34.8
143-147	29.2	29.9	30.7	31.5	32.3	33.1	33.9	34.7	35.5
148-152	29.9	30.7	31.5	32.2	33.0	33.8	34.6	35.4	36.2
153-157	30.6	31.3	32.1	32.9	33.7	34.5	35.3	36.1	36.9
158-162	31.2	32.0	32.8	33.6	34.4	35.2	36.0	36.8	37.6
163-167	31.8	32.6	33.4	34.2	35.0	35.8	36.6	37.4	38.2
168-172	32.5	33.3	34.0	34.8	35.6	36.4	37.2	38.0	38.8
173-177	33.0	33.8	34.6	35.4	36.2	37.0	37.8	38.6	39.4
178-182	33.6	34.4	35.2	36.0	36.8	37.6	38.4	39.2	39.9
183-187	34.1	34.9	35.7	36.5	37.3	38.1	38.9	39.7	40.5

Table D4: Percent Fat Estimates For Four Sites-Women

	Age to last year								
Sum of 4 skinfolds	18-22	23-27	28-32	33-37	38-42	43-47	48-52	53-57	58
23-27	8.6	9.3	9.4	9.6	9.7	9.9	10.0	10.2	10.3
28-32	10.0	10.7	10.8	11.0	11.0	11.3	11.4	11.6	11.7
33-37	11.2	12.0	12.2	12.3	12.4	12.6	12.7	12.9	13.0
38-42	12.6	13.3	13.5	13.6	13.7	13.9	14.1	14.2	14.4
43-47	13.9	14.6	14.8	14.9	15.0	15.2	15.4	15.5	15.7
48-52	15.2	15.9	16.1	16.2	16.3	16.5	16.7	16.8	17.0
53-57	16.5	17.2	17.3	17.5	17.5	17.8	17.9	18.1	18.2
58-62	17.7	18.4	18.6	18.7	18.8	19.0	19.1	19.3	19.4
63-67	18.9	19.6	19.8	19.9	20.0	20.2	20.4	20.5	20.7
68-72	20.1	20.8	21.0	21.1	21.2	21.4	21.6	21.7	21.9
73-77	21.3	22.0	22.1	22.3	22.3	22.6	22.7	22.9	23.0
78-82	22.5	23.1	23.3	23.4	23.5	23.7	23.9	24.0	24.2
83-87	23.6	24.3	24.3	24.4	24.6	24.9	25.0	25.2	25.3
88-92	24.7	25.4	25.5	25.7	25.7	26.0	26.1	26.3	26.4
93-97	25.8	26.5	26.6	26.8	26.8	27.1	27.2	27.4	27.5
98-102	26.8	27.5	27.7	27.8	27.9	28.1	28.3	28.4	28.6
103-107	27.9	28.6	28.7	28.9	28.9	29.2	29.3	29.5	29.6
108-112	28.9	29.6	29.7	29.9	30.0	30.2	30.3	30.5	30.6
113-117	29.9	30.6	30.7	30.9	31.0	31.2	31.3	31.5	31.6
118-122	30.9	31.6	31.7	31.9	31.9	32.2	32.3	32.5	32.6
123-127	31.9	32.5	32.7	32.8	32.9	33.1	33.3	33.4	33.6
128-132	32.8	33.5	33.6	33.8	33.8	34.1	34.2	34.4	34.5
133-137	33.7	34.4	34.5	34.7	34.7	35.0	35.1	35.3	35.4
138-142	34.6	35.3	35.4	35.6	35.6	35.9	36.0	36.2	36.3
143-147	35.5	36.2	36.3	36.5	36.5	36.7	36.9	37.0	37.2
148-152	36.3	37.0	37.2	37.3	37.4	37.6	37.8	37.9	38.0
153-157	37.2	37.8	38.0	38.1	38.2	38.4	38.6	38.7	38.9
158-162	38.0	38.6	38.8	38.9	39.0	39.2	39.4	39.5	39.7
163-167	38.8	39.4	39.6	39.7	39.8	40.0	40.2	40.3	40.5
168-172	39.5	40.2	40.3	40.5	40.6	40.8	40.9	41.1	41.2
173-177	40.3	40.9	41.1	41.2	41.3	41.5	41.7	41.8	42.0
178-182	41.0	41.7	41.8	42.0	42.0	42.3	42.4	42.6	42.7
183-187	41.7	42.4	42.5	42.7	42.7	43.0	43.1	43.3	43.4
188-192	42.4	43.0	43.2	43.3	43.4	43.6	43.8	43.9	44.1
193-197	43.0	43.7	43.9	44.0	44.1	44.3	44.4	44.6	44.7
198-202	43.7	44.3	44.5	44.6	44.7	44.9	45.1	45.2	45.4

Appendix D5: Calibration Instructions for the Vista Mini-CPX, Model 17670.

Important Notes for Correct Calibration

- Warm up the instrument for at least 30 minutes.
- Enter the gas concentration % values from your calibration gas tank in the Turbo fit Calibration Main Menu.
- Connect calibration gases via the Rear Panel luer connector marked "cal gas in."
- Always have the sample tube and filter connected to the GAS INLET port, do not calibrate without them.

Auto Calibration

1. Turn the pump switch ON. The pump indicator light should turn RED to indicate that the continuous sampling is in progress.
2. Click on AUTO CALIBRATION
    a. This opens the "Auto Calibration Step 1" screen. If you are not using air as your step 1 calibration gas, then click on tank icon 1 and/or 2 and enter the proper calibration gas values. Follow the onscreen instructions.
    b. Make sure your gas sample tube is exposed to air at the point you normally sample gases for analysis, e.g. mouthpiece, facemask, or mixing chamber. (If you are not using air as your step 1 gas then connect the appropriate calibration gas here).
    c. Wait approximately 60 seconds, adjust the O_2 SPAN potentiometer so that the O_2 display reads between 20.8 and 21.5 % O_2.

d. Adjust the CO_2 ZERO potentiometer so that the CO_2 digital display reads between 0.02 and 0.08% CO_2. (Or to 0.00 if you are using the CO_2 absorber).

e. If you readjust any potentiometer after this step you MUST repeat the steps a-d.

3. Click on START

   a. The "Calibration in Progress" window opens and a progress indicator shows the status.

   b. If the calibration is successful, the "Continue" button will start blinking. If not read *Calibration Error Message*, and refer to the manual.

4. Click on CONTINUE

   a. This opens the "Auto Calibration Step 2" screen. Follow the on-screen instructions. Connect your calibration gas through the sampling line to the CAL GAS OUT connector on the front panel.

   b. Adjust the Calibration Gas Flow rate so that the floating ball inside the front panel flowmeter is in the green dot area.

   c. The START button will start flashing after the gas analyzer voltage changes in response to the new calibration gas.

5. Click on START

   a. If the calibration is successful, the "Finish" button will start blinking. If not, read the *Calibration Error Message* and refer to manual.

6. Click on Finish

a. Follow the on-screen instructions. Disconnect your calibration gas, close tank valve. Turn the PUMP switch OFF on the mini-CPX. (Leaving the pump switch on during test will cause inaccurate results).

Volume Calibration

1. Before you attempt a new volume calibration you should verify if the existing volume calibration is correct.

Volume Calibration Verification

1. Click on the "Clear" button to zero the volume reading.
2. Connect the empty volume calibration syringe to the tubing port.
3. Suck out a full syringe.
4. Press clear icon again to zero the volume reading.
5. Inject a full syringe and check if volume showing in the volume bargraph is within ±2% of syringe volume.
6. Repeat steps 1-5 if desired.

DO NOT recalibrate unless needed. Check manual for recalibration instructions.

Temperature/Barometric Pressure Calibration

1. Click on the temperature or pressure scale to open the corresponding calibration window.
2. Type in the temperature and barometric pressure to be used for the current test calculations.

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