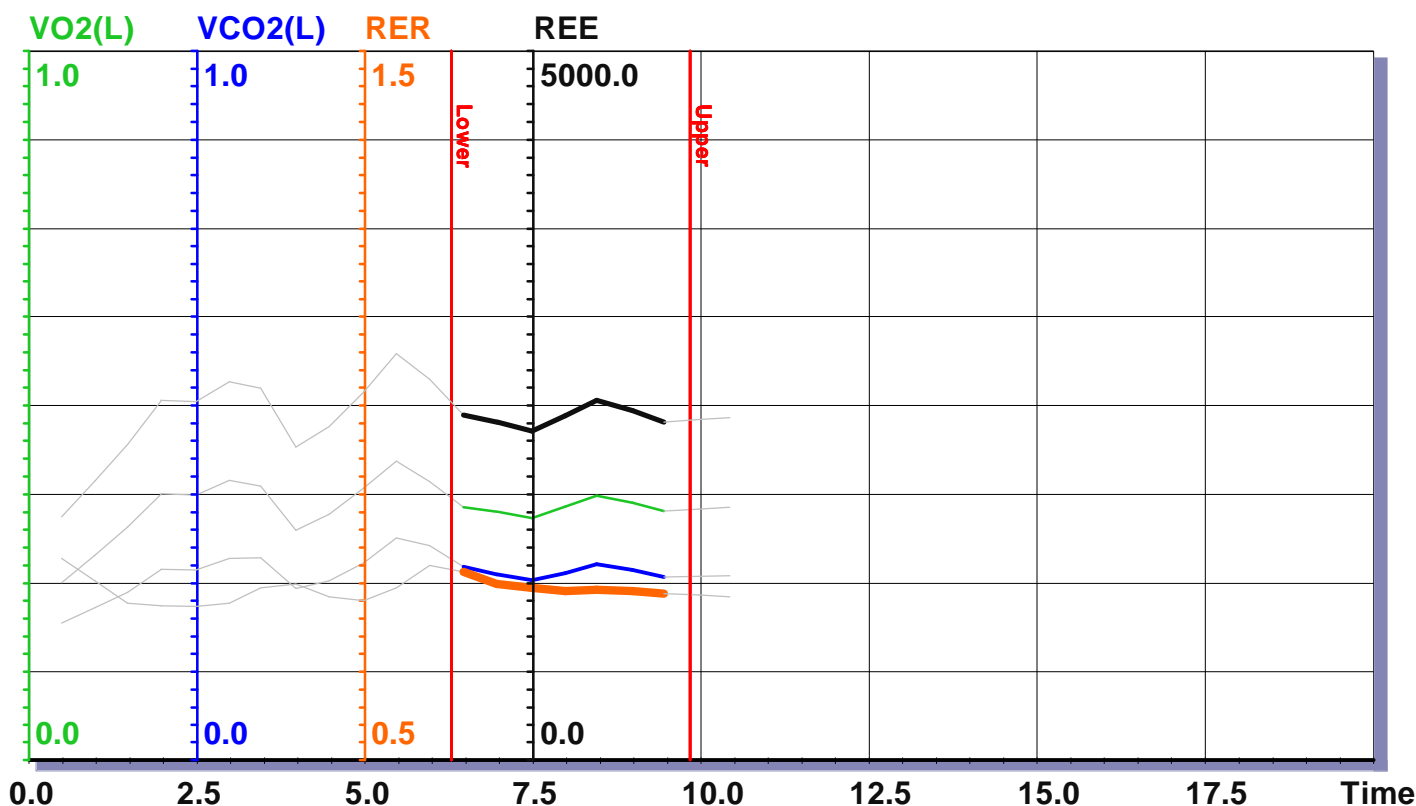


VacuMed (Version 5.04 / March 21, 2004)

4538 Westinghouse Street
Ventura CA 93003



ID	: 987	Protocol	: bike_step
Sex	: Male	Date of Test	: 04/01/02 13:54:09
First Name	: REST	Baro	: 760 mmHg (101 KPa)
Last Name	: TEST	Temperature	: 22°C (72°F)
DOB	: 11 December 1988(16)	Humidity	: 45 %
Weight	: 41.3 Kg (92 Lbs)	Filter	: Avg 60 Sec, Report every 30 sec (BBB)
Height	: 465 cm (182.9 inches)	File	: TestRest1.stress
BMI	: 1.91	Tested by	:
BSA	: 3.00 m2	Physician	:
Date Printed	: 03/23/2004		



FIO2 %	20.94	REE kcal/day	2421.20	CHO kcal/day	203.38
VO2 ml/min	356.33	REE kcal/BSA	50.44	CHO g/day	48.66
VO2 ml/kg/min	8.63	REE / HB(%)	85	CHO %	8.4
VCO2 ml/min	265.17	Non Protein RQ	0.73	Lipid kcal/day	2217.82
RQ	0.74	REE(adj)		Lipid g/day	234.44
Resp Rate	17	Urinary g/day	13	Lipid %	91.6
Heart Rate bpm	0				
METS	1.25				
Pred REE(HB)	2850.64				
Pred REE(Fleisch)	2921.11	Mode	Mask		
REE Mean = 2421.20 kcal/day			Standard Deviation = 63.15		

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Time	VO2(L)	VO2(Kg)	VCO2(L)	RER	REE	EE_min	RR	TV(btps)	VE(stpd)
00:29	0.251	6.1	0.194	0.78	1715	1.19	19	0.57	9.15
00:59	0.290	7.0	0.216	0.75	1968	1.37	19	0.59	9.00
01:28	0.329	8.0	0.237	0.72	2223	1.54	17	0.63	8.90
01:58	0.376	9.1	0.270	0.72	2536	1.76	17	0.67	9.65
02:29	0.374	9.1	0.268	0.72	2526	1.75	18	0.65	9.54
02:59	0.395	9.6	0.285	0.72	2667	1.85	18	0.69	10.34
03:27	0.386	9.4	0.286	0.74	2623	1.82	18	0.69	10.24
03:58	0.325	7.9	0.243	0.75	2208	1.53	17	0.63	8.83
04:28	0.347	8.4	0.253	0.73	2349	1.63	18	0.64	9.33
04:59	0.383	9.3	0.278	0.73	2595	1.80	19	0.65	10.13
05:28	0.422	10.2	0.314	0.74	2867	1.99	18	0.76	11.16
05:58	0.393	9.5	0.303	0.77	2686	1.87	17	0.74	10.33
06:28	0.357	8.6	0.273	0.77	2434	1.69	18	0.64	9.35
06:58	0.350	8.5	0.262	0.75	2384	1.66	18	0.63	9.37
07:29	0.341	8.3	0.254	0.74	2320	1.61	18	0.63	9.26
07:59	0.358	8.7	0.264	0.74	2428	1.69	18	0.65	9.47
08:27	0.373	9.0	0.276	0.74	2534	1.76	18	0.66	9.49
08:59	0.363	8.8	0.268	0.74	2464	1.71	17	0.65	9.19
09:27	0.352	8.5	0.258	0.73	2385	1.66	17	0.64	9.08
09:58	0.354	8.6	0.260	0.73	2402	1.67	17	0.64	9.07
10:26	0.357	8.6	0.261	0.73	2416	1.68	17	0.65	9.17



The Meaning of Resting Energy Expenditure

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Resting Energy Expenditure (REE) is the minimum amount of calories a person requires without voluntary movement. Listed in the table below are the pretest recommendations for measuring a person's REE. The test simply requires you to rest lying down very comfortably but awake for 20 to 30 minutes while wearing a facemask or hood (canopy) connected to the metabolic measurement system that analyzes your exhaled breath.

Testing Recommendations for Measuring REE

Pre-testing Requirement	REE
Light Meals (< 500 kcals)	4 hr fast
Medium or Heavy Meals (> 500 kcals)	8 hr fast
Caffeine Beverages	8-12 hr fast
Non caffeine beverages (i.e., milk, meal substitute shakes < 500 kcals)	4 hr fast
Nicotine Use	8-12 hr fast
Light to moderate exercise	Abstain 18-24 hr
Intense exercise	Abstain 48 hr
Sleep Requirements	8 to 12 hr of restful sleep

Procedures for Measuring REE

You will be asked to use the first few minutes to get into a very comfortable position. In most measurement settings, patients are given a rest period prior to donning the measurement device (i.e., facemask). This is done to calm you and make you comfortable prior to testing. Because measuring a person's resting energy expenditure is a very sensitive test, your slightest movements or changes in your breathing patterns will affect the final test results. The goal is to find a 5 to 15 minute period when you are absolutely relaxed, without movements or physical or mental distress. The total testing time for measuring a person's resting energy expenditure takes approximately 30 to 60 minutes.

During a resting energy expenditure test, three important variables are measured: Ventilation (how much you breathe), oxygen consumption (VO₂) and carbon dioxide production (VCO₂). From these numbers, the computer calculates a person's resting caloric expenditure and provides information about how much fat or carbohydrate fuel is being used to sustain life at rest.



Predicted REE

Most metabolic measurement systems provide a predicted measure of a person's REE. There are several prediction equations available, which are based on studies of a large number of so-called "normal subjects". In most cases these equations are based on a person's sex, weight, height and age.

Be careful, when comparing your predicted REE to your actual, measured REE. Since predicted values are essentially "averages" of large population groups, differences of up to 10% are not unusual, or they may be the result of not following the above pre-test recommendations. The expertise of professional council is required to fully interpret test results.

Resting Energy Expenditure

Resting energy expenditure is actually the measurement of how much oxygen a person consumes from the atmosphere. Once a person's oxygen consumption is known along with a person's RQ (See explanation below), REE is typically expressed in kcal per 24 hours. There are a variety of things that affect a person's REE values. These include age, sex, training status, the amount of a person's fat-free weight, overall body size, hormonal status, environmental temperatures, feeding status (over-fed versus starvation), disease status and genetics.

Thus, it is important to always consider the results from a REE measurement in context with these known effectors of metabolic rate. For example, people who are constantly fasting or eat very low calorie diets (<1,000 kcal per day) typically have reduced metabolic rates. Typically, the two most important effectors on metabolic rate are your feeding status and the amount of your fat-free weight. Fat free weight is comprised of the most metabolically active tissues in the body (organs and skeletal muscle). That is why exercise is so important in helping a person maintain a lean body or loose weight. Regular exercise increases of a person's fat-free weight to promote optimum metabolic profiles. Severe under-eating on the other hand, reduces a person's metabolic rate. This is especially true when a person remains in a negative energy balance beyond 24 hours. This is the body's way of protecting itself from wasting away.

Respiratory Quotient (RQ) or Respiratory Exchange Ratio (RER)

The RQ (also RER or just "R") in mathematical terms is the ratio of the volume of CO₂ produced divided by the volume of O₂ consumed per minute. The normal range for the RQ ratio is 0.7 to 1.0. RQ measures can provide several important pieces of information about a person's metabolic state.

For example, RQ = 0.70 indicates that the substrate used at the time a person's metabolism was measured is derived 100% from fat stores. In contrast, RQ = 1.00 indicates that 100% carbohydrates are a person's energy expenditure fuel. Such a condition may occur during high intensity exercise. A RQ of 0.85 represents that metabolic state in which approximately 50% of a person's kcal come from fat and carbohydrate each. A RQ of less than 0.7, usually is an indication that the person is in a state of starvation.

When a person's resting metabolic rate is measured in combination with RQ values, valuable information is obtained that can be very helpful in developing a long-term strategy for either a weight loss, weight maintenance, or weight gain nutrition program. For example, this information can help to determine how many total and fat calories should be consumed in



order to loose weight at an appropriate and safe level (1-2 pounds per week). You should also be aware that research has shown that a weight loss program should consist of *both* a reduction in calorie intake *and* an increase in exercise activities.

REInfo.doc
24 August 2001