



The first desktop system for easy and accurate Cardio Pulmonary Exercise Testing

- ▶ $\dot{V}O_2$ max and sub-max $\dot{V}O_2$
- ▶ Anaerobic Threshold & Individual Training Zones
- ▶ Nutritional Assessment (REE, RMR), & Energy Balance
- ▶ Fitness Assessment, Body Composition & Risk Analysis
- ▶ PC Software for Data Management, ACSM Exercise Prescription and more...
- ▶ Compact, affordable and easy to use



Fitmate PRO provides a different approach to traditional Cardio Pulmonary Exercise Testing. The system is compact (desktop size) with a large LCD screen, keypad and built in thermal printer. The Fitmate technology allows to execute the VO_2 max and sub max test with most of cyclergometers and treadmills available in the market (h/p/cosmos, Ergoline, Trackmaster, Technogym, Monark etc.). Warnings and quality control messages (mask leaks, breathing pattern etc.) are displayed during test.

Fitmate PRO has been validated for measuring VO_2 max¹ and for predicting maximal oxygen consumption with a sub-maximal protocol².

Fitmate PRO finds its natural applications in the following areas:

- ▶ University, Education, Research
- ▶ Performance centers
- ▶ Military Fitness & Research
- ▶ Health Clubs
- ▶ Professional teams
- ▶ Corporate Wellness

Cardio Respiratory Fitness (VO_2 max)

- ▶ VO_2 , ventilation, heart rate and related parameters with a 15 seconds sampling rate
- ▶ Pre-defined VO_2 max and Sub-max exercise protocols and user defined protocols
- ▶ Pre-defined or custom exercise protocols (Bruce, cycle, ramp etc.)
- ▶ Automatic and adjustable Anaerobic Threshold detection
- ▶ Automatic RQ compensation during resting and graded exercise
- ▶ Automatic (protocol) or manual ergometer control
- ▶ Heart rate measurement with wireless belt (included) or TTL from ECG (optional)
- ▶ Calculation of Training Zones based on relationship between VO_2 and HR (both sub max and VO_2 max testing)

Fitness Assessment

- ▶ Muscular fitness, resistance & flexibility
- ▶ Body Composition;
- ▶ Standard Measurements (WHR, blood pressure etc.)

- ▶ Comprehensive Exercise Prescription report based on ACSM guidelines with a database of exercises and pictures for didactic purposes
- ▶ Cardiovascular Risk Analysis (PC software only)

Nutritional Assessment

- ▶ Individual weight management programs based on Energy Balance equation
- ▶ Weekly Dietary plan and software (w/ USDA Database);
- ▶ Complete Lifestyle and Physical activity monitoring up to 60 days (with optional monitor, Lifecorder)

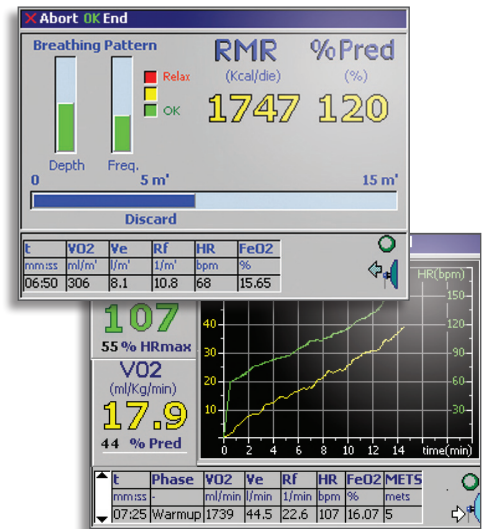
Resting Energy Expenditure

Fitmate measures accurate oxygen consumption at rest (REE, RMR), comparable with conventional metabolic carts³. Tests can be executed either with face masks (single or multi-use) or, optionally, with an integrated canopy hood.

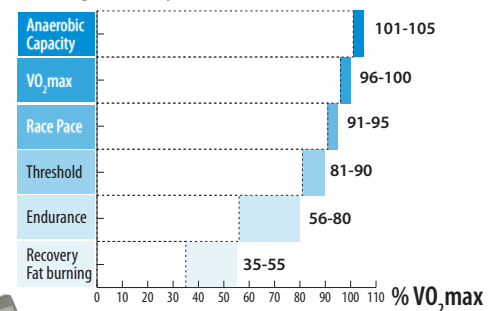
- 1 Validation of Fitmate in measuring exercise metabolism [David C. Nieman, et al. Research in Sports Medicine, 15: 67–75, 2007]
- 2 Validation of Fitmate for prediction of maximal oxygen consumption [David R. Bassett, et al. J Strength & Conditioning, 25(9):2573–2579, 2011]
- 3 Validation of Fitmate in measuring REE [David C. Nieman, et al. Research in Sports Medicine, 14: 1–8, 2006]

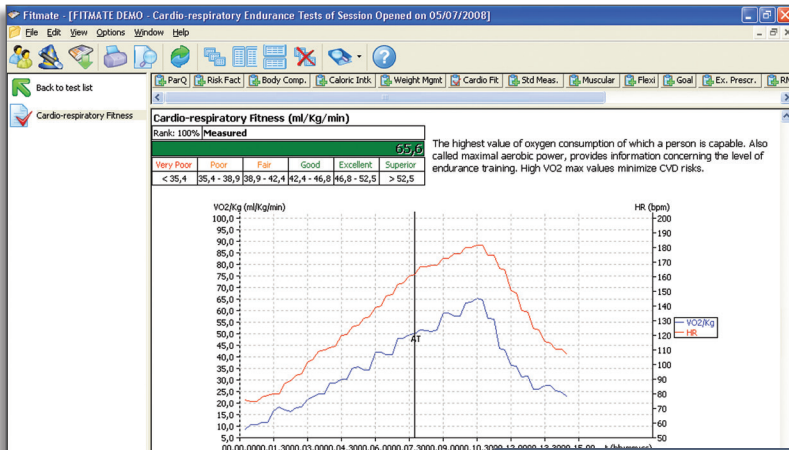


Comfortable silicone masks (5 sizes, both adult and pediatric) are available for exercise testing and for resting measurements

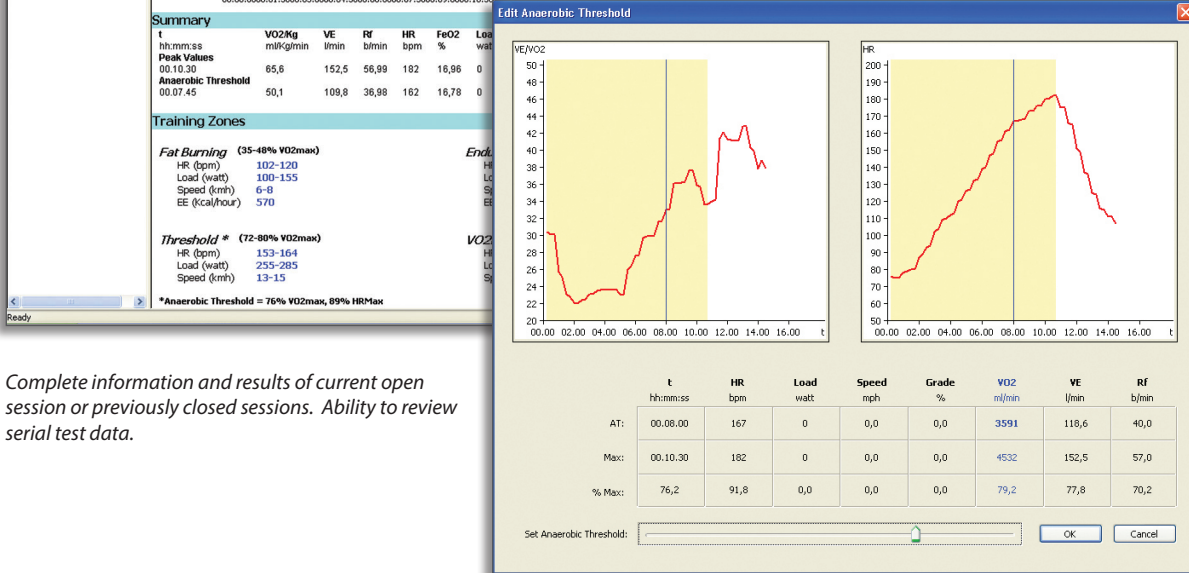


Training Intensity





Easy to replace, the O₂ cell comes in a sealed bag, Lifespan is 12-18 months and it is indicated by the device.



Complete information and results of current open session or previously closed sessions. Ability to review serial test data.

Fitmate Wellness Technology

Last Name: BOND
First Name: James
Gender: Male
Age: 41
Weight (Kg): 89,0
Membership #: 25/02/2009
Report Date: Personal Trainer:

Exercise Prescription

Dear James, I would like to thank you for participating in our recent fitness screening. The results of your assessment based upon norms for your age and sex are attached. Following a thorough review of your health risk appraisal and fitness assessment we identified no cardiovascular risk factors based upon criteria from the American College of Sports Medicine. Based upon your age, family history and health status, we find no reason to limit your participation in this exercise program.

In order to control/reduce risk factors, achieve a cardiovascular benefit, and burn stored fat as a primary fuel, it is important that you adhere to the following exercise guidelines:

Your exercise prescription as described to you at the time of the assessment is comprised of three stages:

- Initial conditioning stage, 6-8 weeks.
- Improved conditioning stage, 4-8 months.
- A maintenance conditioning stage, lifetime.

In each of these phases, the components of the program (duration and intensity of cardiovascular training, strength training and flexibility development) will gradually change based upon your individual progress. In this initial stage the goal is to create a strong foundation from which your exercise prescription will be developed. We will focus on gradual increases in training to minimize risks of injury, teach proper technique and create an environment where you are able to commit to a lifestyle of training. We recommend that you consult with your exercise specialist in 4 to 6 weeks to review your progress and update the exercise prescription.

Frequency of exercise sessions

Your exercise prescription has been prepared based on "days/week" sessions/week.

Frequency (# per week): 3

Warm-up

Duration: 5 to 10 minutes

We recommend a warm-up activity similar to the one used during the cardiovascular training.

Walking, running, or one of activities is resting, and try. You will best exercise is to an exercise

20

107

5-10

4

2

1-3/10

6-10

4-15

3 sets of 10 repetitions each with weight = 25

Software printout sample (available in A4 or Letter size): ACSM Exercise Rx

COSMED
37, Via dei Piani di Monte Savello
I-00041 Rome ITALY (www.cosmed.com)

Last Name: DEMO
First Name: FITMATE
ID: 00001
Date(dd-mm-yyyy): 28/04/2009
Test conducted by: 157
Gender: Male
Height(cm): 33
Weight(Kg): 85,5
Age: 33
BMI(Kg/m²): 35,0

Cardio Respiratory Fitness

Test type: Submaximal
Ergometer: Other-not interfaced
Exercise protocol: Bike-Ramp 25W/min
HRmax (bpm): 187

70
60
50
40
30
20
10
0

0 30 60 90 120 150

HR(bpm)

VO2Max Est.

t	mm:ss	VO2Kg	Ve	Rf	HR	FeO2	Load	EE
mm:ss	ml/Kg/min	l/min	l/min	bpm	%	Watt	kcal/h	
Peak value	06:30	34,2	80,8	33,0	140	16,14	111	887

VO2 (ml/Kg/min)

Rank: 91%

Very Poor	Poor	Fair	Good	Excellent	Superior
<35,3	35,3-39,9	39,9-42,4	42,4-46,8	46,8-52,5	>52,5

Functional Capacity (METS): 14

TRAINING ZONES (HR)						
	Fat Burn	Endurance	Thresh.	Race Pace	VO2max	Supramax
HR (bpm)	108 - 132	134 - 162	164 - 174	176 - 180	182 - 187	>187
Load (W)	100-175	180-265	270-305	310-320	325-340	345-360
%VO2	35-55	56-80	81-90	91-95	96-100	>100
EE(kcal/h)	640	920				

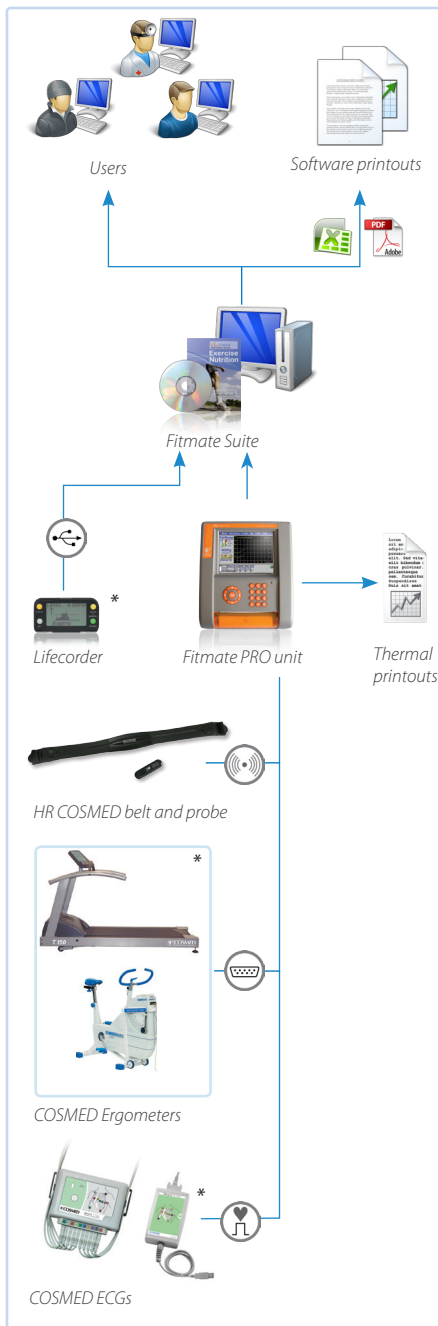
Subject data & Test Information

The Graph shows VO₂/Kg, Heart Rate

Gas Exchange Data (VO₂, VE, HR etc.) at peak, average, or each 15 secs interval

Individual HR Training Zones based on calculated Anaerobic Threshold

Thermal printout sample (original size 110mm wide): Sub-Maximal Exercise Test



-  RS-232 Port
-  Wireless *Option
-  USB Port
-  TTL

Technical Specification

Tests	w/Unit	w/Software
Cardio Pulmonary Exercise Testing		
Cardio Respiratory Fitness (VO ₂ max)	•	•
Anaerobic Threshold	•	•
Automatic control of ergometers (Bikes or Treadmills)	•	•
HR interface w/ external ECG (TTL)	•	•
VO ₂ /HR Training Zones (based on AT)	•	•
Energy expenditure during exercise	•	•
Nutritional Assessment		
Resting Energy Expenditure (REE, RMR) with face mask	•	•
Resting Energy Expenditure (REE, RMR) with canopy hood	○	•
Weight Management Program (Energy Balance)	•	•
Physical Activity Monitoring (integration with accelerometer)	•	○
Diet Software w/ Weekly Meal Planner	•	•
Fitness Assessment		
Muscular endurance/strength, flexibility, goals	•	•
Exercise Prescription based on ACSM database	•	•
Body Composition (skin-fold)	•	•
Other Measurements		
Standard Measurements (blood pressure, WHR, resting heart rate, BMI..)	•	•
Cardio Vascular Risk Analysis (Framingham Index)	•	•

Oxygen Consumption Measurements		
Sensor Type	GFC (Galvanic Fuel Cell)	
O ₂ Measurement range	0-25%	
Sampling Type	Dynamic Mixing Chamber (international patent)	
Sampling Rate	30 sec / 60 sec	
Calibration	Automatic on room air (less than 20 seconds)	
Warm-up time	10 seconds	
REE Accuracy	± 2%	
O ₂ Accuracy	±0.02%	
O ₂ Sensor Lifespan	12-18 months	
Flowmeter:	Ø 18mm	Ø 28mm
Type	Bidirectional digital turbine	Bidirectional digital turbine
Ventilation range	0-50 l/min	0-300 l/min
Flow resistance	<0.7 cmH ₂ O/l/s @ 3l/s	<0.6 cmH ₂ O/l/s @ 14l/s
Accuracy Flow/Volume	±2%	±2%

Hardware		
Dimensions & Weight	24 x 20 x 8 cm / 1.5kg	
Display	Color LCD 320 x 240 pixel	
Printer	High speed thermal printer 12 cm (4,7 in)	

Standard Packaging Includes

Fitmate PRO unit, RMR - Flowmeter, RMR masks (10 pcs), VO₂max - flowmeter, Silicone face mask, (M-size), Head cap for silicone mask, AC/DC Adapter, USB cable, Ergometer Cable, Fitmate PC Software (CD-Rom), Body meter, Oxygen sensor, HR belt and probe.

Available languages	
Firmware	Italian, English, Spanish, French, German, Portuguese, Greek, Dutch, Turkish, Chinese, Korean, Japanese, Finnish, Polish, Russian, Slovenian
Software	Italian, English, Spanish, French, German, Portuguese, Greek, Dutch, Chinese, Finnish, Russian, Slovenian

PC configuration required

Pentium or faster, Windows XP, VISTA (32/64 bit), Windows 7 (32/64 bit) 128 Mb RAM or more, USB, CD-Rom reader, 80 Mb on HD space available.

Safety & Quality Standards

Equipment complies with MDD (93/42 EEC); EN 60601-1 (safety) / EN 60601-1-2 (EMC) FDA 510(k) cleared.
 COSMED is an organization whose quality management system is certified by CERMET according to UNI EN ISO 9001:2008 and UNI EN ISO 13485:2004.

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