



The Only Complete Desktop Solution for Accurate, Quick & Simple Indirect Calorimetry

- ▶ Accurate Measurement of Resting Energy Expenditure
- ▶ Affordable, Portable, Compact, Easy to Use with Built-in Printer
- ▶ Energy Balance based Weight Management Plans
- ▶ Includes Software for Data Management, Lifestyle Analysis & Full Diet Plans
- ▶ Integration with Activity Monitor (optional)
- ▶ Validated vs. Gold Standard Technique



| Calories OUT | Calories IN |
|--------------|-------------|
| 2900 Kcal    | 2400 Kcal   |

|                 |               |
|-----------------|---------------|
| Exercise (10%)  | Protein       |
| Lifestyle (20%) | Carbohydrates |
| RMR (70%)       | Fat           |

Energy balance = - 500 Kcal/day

Fitmate is the first desktop device designed for providing accurate Resting Energy Expenditure (REE, RMR) for all fields dealing with obesity and malnutrition. Prior to the introduction of Fitmate accurate Nutritional Assessment was only available in hospitals and large clinics due to the cost and complexity of the systems. Now, Fitmate allows affordable, simple and quick measurement of metabolism, a fundamental component of any individual weight management program. Fitmate can be used in a variety of settings including:

- ▶ Clinical Nutrition, Obesity treatment, diabetes, malnutrition, preventive medicine centers
- ▶ Commercial Weight Management, Weight Loss Clinics, Health Clubs, Beauty, SPA
- ▶ School and Community Services
- ▶ Respiratory care in conjunction with obesity or malnutrition (COPD, Sleep disorders, Cystic Fibrosis etc.)
- ▶ Sport nutrition and more.

## Accurate Resting Energy Expenditure

Fitmate has been validated for the measurement of Oxygen Consumption ( $VO_2$ ) and Resting Metabolic Rate (RMR/REE). Fitmate only measures  $VO_2$ , and assumes a constant Respiratory Quotient (RQ), set at 0.85 (or user defined). Strong scientific evidence<sup>1</sup> demonstrates that, in a steady state, the RQ is always in the range of  $0.84 \pm 0.04$ . This allows Fitmate to be used either in research or clinically on malnourished and obese patients.

Oxygen uptake ( $VO_2$ ) is measured in real time, by means of a dynamic mixing chamber (patented) and data is sampled with average of 30 seconds or more. RMR Testing is simple, fast and a report print-out is provided in seconds via the built-in thermal printer.

Tests can be executed either with face masks (single or multi-use) or, optionally, with an integrated canopy hood.

## Energy Balance

Fitmate helps professionals in developing individualized weight management programs based on the Energy Balance Equation.

The Energy Balance is a simple equation, the difference between caloric intake (calories IN) and Energy Expenditure (calories OUT). Once REE is measured, Fitmate provides several tools to estimate or calculate the energy contribution of either lifestyle (physical activity monitors, questionnaires) and the daily exercise. As soon as the daily Total Energy Expenditure (TEE) is calculated, users can set the desired weight goal and get a recommended food intake in just few seconds.

## Body Composition

Fitmate also handles body composition assessment to check if either diet or lifestyle changes have decreased % body fat and increased lean body mass. Body composition data from the BOD POD or other devices can be input and integrated with Fitmate, providing a consistent reporting.

<sup>1</sup> Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein and Carbohydrates. [Frank M.Sacks, at al. The New England Journal of Medicine, 859-973: 02, 2009.]



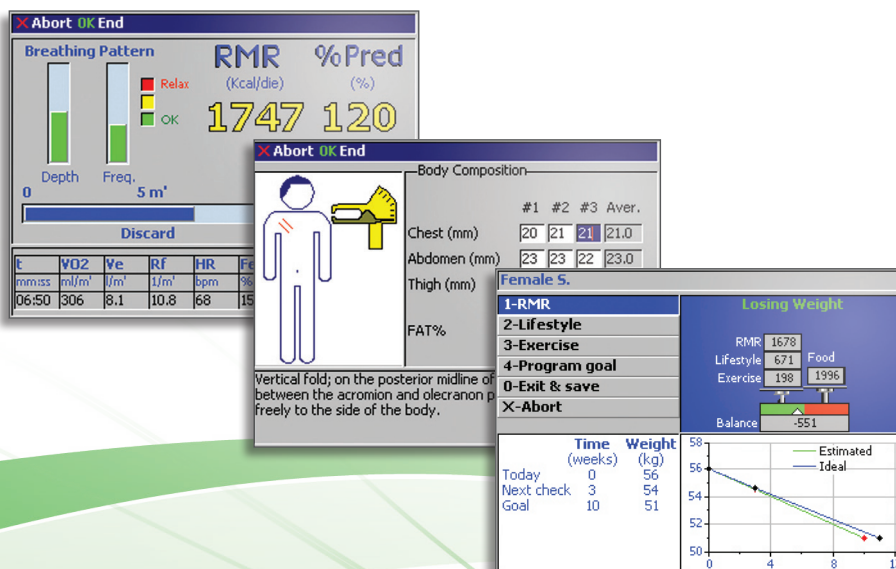
Resting Energy Expenditure Testing with silicone mask



Possibility to perform RMR test also by using the "Mouthpiece & Nose-clip" system



REE tests can be also performed (optionally) with a comfortable canopy hood



# Integrated Physical Activity Monitor (optional)

The Fitmate can become a complete solution for monitoring lifestyle and patient's compliance. The Fitmate Lifecorder, is a mono-axial solid-state accelerometer that records five physical activity levels (PAL), steps, distance and many other parameters. The Fitmate Lifecorder has an internal memory (up to 60 days) and a mini USB port allows recorded data to be saved to Fitmate software. A detailed and comprehensive report is available in just a few steps.

# Weekly Diet Plan

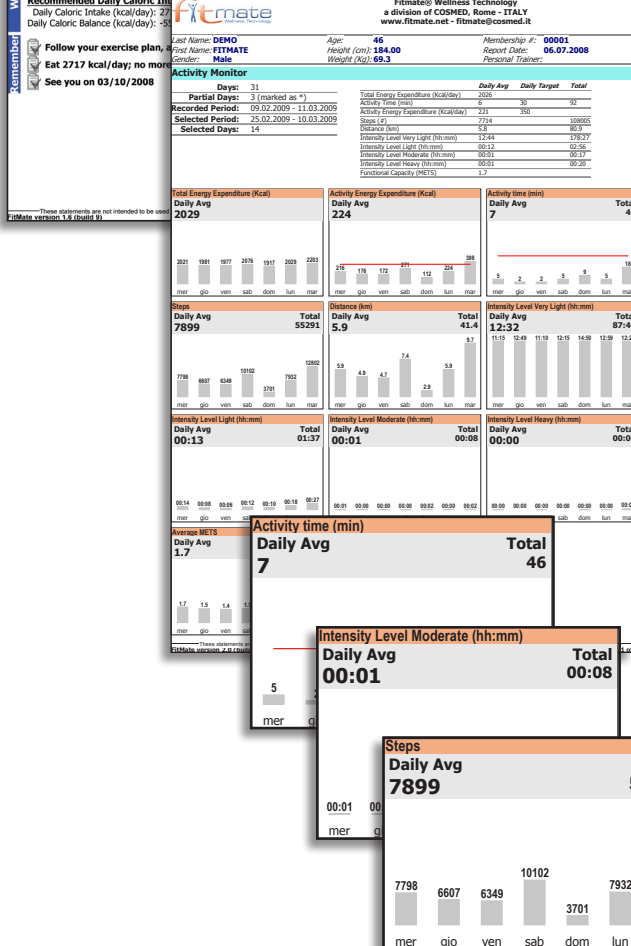
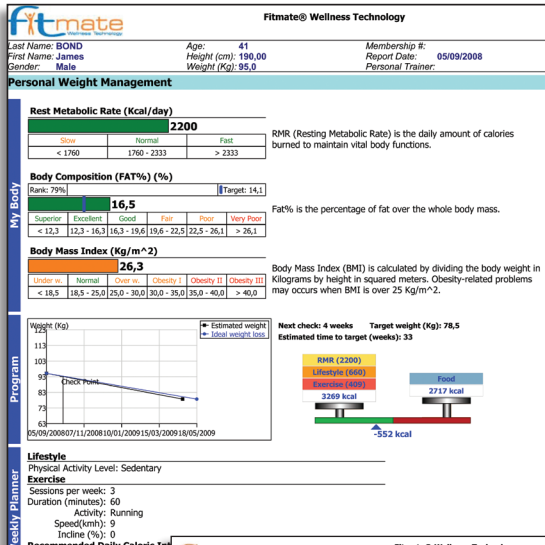
Fitmate Software provides a fully customizable dietary management software with an editable database based on the USDA pyramid. You can save the Diet plans as templates, add new foods and much more. Daily or weekly plan is provided in a simple, easy to read report including Daily Nutrition Facts.



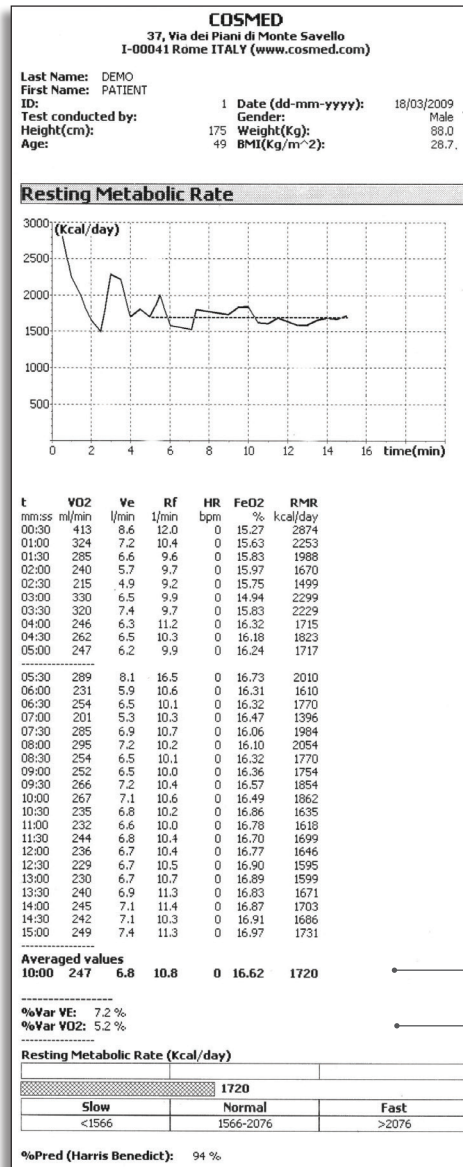
Easy to replace, the O<sub>2</sub> cell has a lifespan of 12-18 months. Cell efficiency can be checked on the device



Fitmate Physical Activity Monitor (Lifecorder Plus)



Software printout samples (available in A4 or Letter size):  
 Weight Management and Activity monitor



Thermal printout sample (original size 110mm wide):  
 RMR measurement

Patient data

REE Graph  
 Kcal/day vs. time

Discarded interval

Measurement interval

Averaged values

Quality control Indexes

Actual results compared  
 with predicted values



 USB Port

\*option

## Technical Specification

| Tests  | w/Unit | w/Software |
|--|--------|------------|
| <b>Nutritional Assessment</b>  |        |            |
| 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                                 |        | ●          |
| <b>Other Measurements</b>  |        |            |
| Standard Measurements (blood pressure, WHR, resting heart rate, BMI) | ●      |            |
| Framingham Index   |        | ●          |
| Body Composition (skin-fold)   | ●      |            |

### Oxygen Consumption Measurement

|                                  |   |
|----------------------------------|---|
| Sensor Type                      | GFC (Galvanic Fuel Cell)                      |
| O <sub>2</sub> Measurement range | 0-25%   |
| Sampling Type                    | Dynamic Mixing Chamber (international patent) |
| Sampling Rate                    | 30 sec / 60 sec                               |
| Calibration                      | Automatic on room air                         |
| Warm-up time                     | 10 seconds                                    |
| REE Accuracy                     | ± 2%  |
| O <sub>2</sub> Accuracy          | ±0.02%  |
| O <sub>2</sub> Sensor Lifespan   | 12-18 months                                  |

### Flowmeter

|                      |                                      |
|----------------------|--------------------------------------|
| Type                 | Bidirectional digital turbine Ø 18mm |
| Ventilation range    | 0-50l/min                            |
| Flow resistance      | <0.7 cmH <sub>2</sub> O/l/s @ 3l/s   |
| Accuracy Flow/Volume | ±2%                                  |

### Hardware

|                     |  |
|---------------------|--|
| Dimensions & Weight | 24 x 20 x 8 cm (9,4 x 7,8 x 3,1 in) / 1.5kg (3,3 lb) |
| Display             | Color LCD 320 x 240 pixel                            |
| Printer             | High speed thermal printer 12 cm (4,7 in)            |

### Standard Packaging Includes

Fitmate unit, RMR - Flowmeter, AC/DC Adapter, USB cable, Fitmate PC Software (CD-Rom), Body meter, Oxygen sensor

### 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 organisation whose quality management system is certified by CERMET according to UNI EN ISO 9001:2008 and UNI EN ISO 13485:2004.



Distributed by:



**COSMED srl**  
Headquarters

Via dei Piani di Monte Savello 37  
Albano Laziale - Rome  
00041 ITALY  
Phone +39 06 931-5492  
Fax +39 06 931-4580

info@cosmed.com

**USA**  
Concord, CA - Chicago, IL

Phone +1 (925) 676-6002  
Fax +1 (925) 676-6005  
info@cosmedusa.com

**CHINA**  
Guangzhou

Phone +86 (20) 8332-4521  
Fax +86 (20) 8332-0683  
china@cosmed.com

cosmed.com