BOD POD Gold Standard
Body Composition

The world's gold standard for fast, accurate and safe body composition assessment

COSMED
The Metabolic Company

“BOD POD is a highly reliable and valid method for determining %FAT in adult humans. This new method is quick, relatively simple to operate and may be able to accommodate special populations[1]”

- Gold Standard accuracy using whole-body densitometry
- Excellent test-to-test repeatability
- Fat and Fat-Free Measurements
- Fast test time (2 minutes inside BOD POD and about 5 minutes total test time)
- Safe, non-invasive, and ideally suited for frequent testing
- Flexibility in testing special populations, including young children with Pediatric Option™

The BOD POD is the world's only Air Displacement Plethysmography (ADP) system using whole body densitometric principles to determine body composition (Fat and Fat-Free Mass) in adults and children.

In comparison to other body composition assessment methods, the BOD POD's air displacement plethysmography has eliminated the invasiveness of Dual Energy X-Ray Absorptiometry (DXA) as well as the difficulties associated with underwater submersion in hydrostatic weighing. A full test requires only about 5 minutes, and provides highly accurate, safe, comfortable, and fast test results. This is why the BOD POD is considered the practical Gold Standard for body composition assessment.

The BOD POD is ideal for assessing the body composition of special populations such as children (young children from 2 to 6 years with Pediatric Option™), the elderly, the disabled and subjects weighing more than 200 kg. It is also completely non-invasive, making it especially suitable for frequent, longitudinal tracking of body composition and metabolic changes over time.

Applications

The BOD POD is used in a wide variety of segments:

- Academic and Medical Research
- Clinical Examination
- Elite Athletic Training
- Military and Public Safety
- Nutrition Counseling
- Bariatric Clinics
- University Fitness

Accomodates a wide range of subjects up to a maximum weight of 250kg

Proven Accuracy

Each BOD POD is a complete turnkey system based on the same Gold Standard operating principle as hydrostatic (underwater) weighing.

The BOD POD uses the principles of whole-body densitometry to determine body composition. This technique relies on a mass measurement from a highly accurate scale (provided) and a volume measurement from the BOD POD chamber.

Once body density (Density = Mass/Volume) is determined, the BOD POD measures or predicts Thoracic Gas Volume (TGV) and then uses known (or user-customized) densito-

Simple and easy for both subject and operator

(1) McCrory MA, et al. "Evaluation of a new air displacement plethysmograph for measuring human body composition." Med Sci Sports Exerc. 1995 Dec;27(12):1686-91.

metric equations to calculate percent Fat and Fat-Free Mass.

The accuracy of the BOD POD has been shown to be very high against reference techniques in a number of research publications.

The BOD POD also provides flexibility in testing special populations - something other techniques are unable to offer.

Test Sequence

The BOD POD is extremely simple to use and does not require a license to operate. A full test requires only about 5 minutes:

- Basic subject information is entered into the specially configured computer system
- The BOD POD is calibrated
- The subject's mass is measured using the integrated digital scale (accuracy is assured by scale calibrations at regular intervals utilizing provided calibration weights)
- The subject's body volume is measured while sitting inside the BOD POD (2 minutes)
- Thoracic Gas Volume (TGV) is measured or predicted
- Test results are displayed and printed

Software Features

- Longitudinal reports of body composition changes
- Customizable body composition ranges
- Customizable density models based on ethnicity, gender and body type (athletic, obese, etc.)
- Data export capability
- Automatic estimates of Resting Metabolic Rate (RMR) and Total Energy Expenditure (TEE)

Maintenance

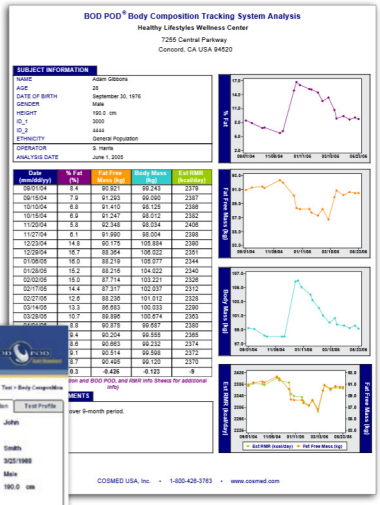
The BOD POD is designed for durability over time. Should the need arise, each BOD POD has an internal diagnostic test function to analyze system performance and provide feedback to service personnel. Extended service agreements are available to insure optimal performance for long term use.

Pediatric Option™ Accessory

The BOD POD with the Pediatric Option™ accessory allows the assessment of body composition of young children. It includes a customized seat insert to create a safe and comfortable testing environment for subjects between 2 and 6 years of age. A modified Windows®-based software program and calibration standard are part of the testing procedure as well. This option is validated for subjects as young as 2 years of age and as small as 12 kg[2].

The Pediatric Option™ accessory allows for easy body composition assessment of young children

[2] Air-Displacement Plethysmography Pediatric Option in 2-6 Years Old Using the Four-Compartment Model as a Criterion Method [DA Fields, et al. Obesity, 2012 Aug;20(8):1732-7]



BOD POD® Body Composition Tracking System Analysis

Healthy Lifestyles Wellness Center
7255 Central Parkway
Concord, CA USA 94520

SUBJECT INFORMATION

NAME	Adam Gibbons
AGE	28
DATE OF BIRTH	September 30, 1976
GENDER	Male
HEIGHT	190.0 cm
ID_1	3000
ID_2	4444
ETHNICITY	General Population
OPERATOR	S. Harris
ANALYSIS DATE	June 1, 2005

Date (mm/dd/yy)	% Fat (%)	Fat Free Mass (kg)	Body Mass (kg)	Est RMR (kcal/day)
09/01/04	9.4	90.923	99.243	2379
09/15/04	7.9	91.293	99.090	2387
10/15/04	8.6	91.410	99.126	2388
10/15/04	6.9	91.247	98.012	2382
11/20/04	5.8	92.348	98.034	2406
11/27/04	6.1	91.990	98.004	2398
12/23/04	14.8	90.175	105.884	2390
12/29/04	16.7	88.364	106.022	2351
01/06/05	16.0	88.219	105.077	2344
01/28/05	15.2	88.216	104.022	2340
02/02/05	15.0	87.714	103.221	2326
02/17/05	14.4	87.317	102.037	2312
02/27/05	12.6	88.236	101.012	2328
03/14/05	13.3	86.663	100.033	2290
03/28/05	10.7	89.896	100.674	2363
[illegible]	8.8	90.876	99.687	2380
[illegible]	9.4	90.204	99.566	2365
[illegible]	8.6	90.663	99.232	2374
[illegible]	9.1	90.514	99.596	2372
[illegible]	8.7	90.495	99.120	2370
[illegible]	6.3	-5.426	-5.123	-5

[illegible]son and BOD POD, and RMR Info Sheets for additional info]

[illegible]MENTS

[illegible]over 6-month period.

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Longitudinal reports provide detailed information on body composition changes

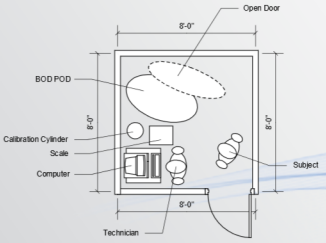
User-friendly and straightforward software interface

Validation articles

- *Fields DA et al "Air Displacement Plethysmography: Cradle to Grave" Nutr Clin Pract. 2015 Mar 11*
- *Wingfield HL, et al. Body composition assessment in overweight women: validation of air displacement plethysmography. Clin Physiol Funct Imaging. 2014 Jan;34(1):72-6.*
- *Fields DA, et al. Air-displacement plethysmography pediatric option in 2-6 years old using the four-compartment model as a criterion method. Obesity (Silver Spring). 2012 Aug;20(8):1732-7.*
- *Anderson DE et al "Reliability of air displacement plethysmography" J Strength Cond Res. 2007 Feb;21 (1):169-72*
- *Fields DA, et al "Air-displacement plethysmography: here to stay" Current Opinion in Clinical Nutrition and Metabolic Care, 8(6):624-629, 2005*
- *Ball SD, et al. Interdevice variability in percent fat estimates using the BOD POD. Eur J Clin Nutr. 2005 Sep;59(9):996-1001.*
- *Ginde SR, et al. ADP: validation in overweight and obese subjects. Obes Res. 2005 Jul;13(7):1232-7.*
- *Fields DA, et al. Body-composition assessment via air-displacement plethysmography in adults and children: a review. Am J Clin Nutr. 2002 Mar;75(3):453-67.*
- *McCrory MA, et al. Evaluation of a new air displacement plethysmograph for measuring human body composition. Med Sci Sports Exerc. 1995 Dec;27(12):1686-91.*
- *More scientific studies on*
- www.cosmed.com/bibliography

Technical Specifications

Product	Description	REF
BODPODGold Standard	Gold Standard body composition tracking system	A461-230-023
Standard packaging	BODPODunit; Calibration cylinder; Electronics scale; Computer; Monitor; Power supply; Serial cable; Software CD; 10Kg calibration weights(2 pcs); Nose clip; Window cleaner; Window cleaning cloths (5 pcs); Quick reference guide; Tube and Filter Kits (1 Box); Body composition posters(1 tube); Transformer assembly; Printer; Printer cable(3 meters); Computer cart; BODPODOperator's manual.	
Measurements		
Body Composition	Body weight, Body volume, Body density, Body Fat (mass and %), Body Fat-Free (mass and %), Thoracic Gas Volume (TGV), Resting Metabolic Rate (estimated), Total Energy Expenditure (estimated)	
Accuracy	Measurements have been found to be equivalent (no statistically significant difference) to those obtained using 4-Compartment Model reference techniques	
Mass Measurement (with high precision digital scale)		
Dimensions & Weight (Scale)	6.4x34x32 cm / 11.3 Kg	
Weight range	up to 250 Kg	
Accuracy	0.05%	
Calibration	Certified 2 Kg weights	
Volume Measurement		
Dimensions & Weight (POD)	185x84x132 cm / 141 Kg	
Chamber volume	450 L	
Accuracy	± 100 ml of cylinder volume	
Calibration	Certified 50 L cylinder	
Environmental Conditions		
Temperature	21-27°C (operating); 5-38°C (storage)	
Humidity	20-70% (non-condensing)	
Barometric Pressure	75-106 KPa (552-795 mm Hg)	
Hardware		
Power requirements	100-240 V ± 10% 50/60 Hz	
Software	BODPOD Suite	
Available languages	English	
Required PC Configuration (PC included)	Windows XP Pro (32 bit) or Windows 7 (32 bit); 256 MB RAM (XP Pro), 2 GB RAM (Windows 7)	
Accessories & Options	**Description**	**REF**
Pediatric option	for subjects between 2 and 6 years of age (as small as 12 kg)	A461-923-010
Safety & Quality Standards		
MDD(93/42 EEC); FDA 510(k); EN60601-1 (safety) / EN60601-1-2 (EMC)		



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