



“Numbers
you can trust”

The world's Gold Standard for non-invasive
infant body composition assessment



COSMED
The Metabolic Company

“ADP is a non-invasive, reliable, and accurate technique to measure infants' body composition in both research and clinical settings⁽¹⁾”

- I Gold Standard accuracy using whole-body densitometry
- I Testing pre-term and term infants (1 to 8 kg)
- I Fat and Fat-Free Mass measurements
- I Accommodates most infant behaviors (crying, movement, etc.)
- I Safe, non-invasive, and ideally suited for frequent testing
- I Excellent test-retest reliability
- I Fast test time (only 2 minutes inside the chamber)



Researchers widely recognize that the accurate assessment and tracking of body composition in the critical period immediately following birth and throughout early life can provide key information in both clinical and research settings.

This includes developing nutrition guidelines, NICU release criteria, dosage requirements, and acquiring normative growth data.

The PEA POD is the world's only Air Displacement Plethysmography system using whole body densitometry to determine body composition (Fat and Fat-Free Mass) in infants weighing between 1 and 8 kg.

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

The PEA POD is extremely simple to use and does not require a license to operate. It is also completely non-invasive and ideal for frequent, longitudinal tracking of body composition.

Main Applications

The PEA POD is an important tool that enables a better understanding of fetal programming, the assessment of efficacy of nutritional therapies, and the development of normative body composition data among other applications. It is used in a wide variety of segments:

- Academic and Medical Research
- Neonatology Departments
- Nutrition Assessment Centers

Proven Accuracy

The PEA POD uses the principles of whole-body densitometry to determine body composition. In this technique, body mass and body volume are measured (both performed within the unit). Once body density ($\text{Density} = \text{Mass}/\text{Volume}$) is determined, the PEA POD uses known (or user customized) densitometric equations to calculate percent Fat and Fat-Free Mass. The accuracy of the PEA POD has been shown to be very high against reference techniques in a number of research publications.

Test Sequence

The PEA POD is extremely simple to operate, with software prompts guiding the operator through each step of the process. From start to finish, a PEA POD test takes about 7 minutes:

- Basic information is entered into the software program while the automatic volume calibration takes place.
- Body mass is measured with a high precision electronic load cell scale embedded in the unit (its accuracy is assured by calibrations at regular intervals).
- Infant is placed in the PEA POD test chamber tray and enters the warmed test chamber for a 2-minute volume measurement. During the entire period the infant is clearly visible at all time through the unit window.
- Test results are computed, displayed and printed.

(1) Roggero P et al "Evaluation of air-displacement plethysmography for body composition assessment in preterm infants." *Pediatr Res.* 2012 Sep;72(3):316-20.

Software Features

- Longitudinal reports of body composition changes.
- Customizable body composition ranges.
- Customizable density models based on ethnicity and gender.
- Data export capability.

Maintenance

The PEA POD is designed for durability over time. Each PEA 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.

Safety

The PEA POD is manufactured in compliance with the strictest quality standards required for medical devices.

The PEA POD adopts the same safety criteria of an incubator. The chamber is kept in constant temperature, constantly ventilated, and an integrated sensor monitors continuously the level of CO2 inside the chamber to activate visual and audible alarms to alert the user of any abnormal function. In addition, the PEA POD has a HEPA filter to protect against airborne disease transmission.

The PEA POD has also a redundant safety system, consisting of a Cancel Test button and an Emergency STOP knob the operator can use to immediately stop/cancel a test and remove the subject.

User-friendly and straightforward software interface



High precision scale embedded in the unit

PEA POD® Infant Body Composition System Analysis

County General Hospital
123 Maple St.
Hope City, MI 55555

HISTORY - % FAT		NORMATIVE DATA*				SUBJECT INFORMATION	
TEST DATE	DATA	MEAN	+1 SD	-1 SD	FIRST NAME	LAST NAME	
11/10/2003 12:21:19 PM	9.5	---	---	---	Lisa	Adams	
11/12/2003 1:15:00 PM	9.8	---	---	---			
11/15/2003 12:36:00 PM	9.7	---	---	---			
11/18/2003 12:02:00 PM	10.1	---	---	---			
11/21/2003 11:47:00 AM	9.5	---	---	---			
11/24/2003 12:56:00 PM	9.9	---	---	---			
12/1/2003 1:47:00 PM	10.5	---	---	---			
12/8/2003 11:36:00 AM	10.4	10.9	20.5	1.2			
12/15/2003 11:15:19 AM	10.3	12.5	21.8	3.1			
12/22/2003 11:03:00 AM	12.8	14.1	23.1	5.1			
12/29/2003 1:22:00 PM	14.2	15.7	24.4	7.0			
1/5/2004 10:51:00 AM	17.5	17.3	25.7	8.9			
1/19/2004 11:19:00 AM	20.1	20.5	28.2	12.7			
2/2/2004 11:41:00 AM	23.5	23.6	30.8	16.5			
2/16/2004 12:23:00 PM	27.6	26.8	33.4	20.3			
3/1/2004 11:33:00 AM	31.1	30.0	35.9	24.1			
3/15/2004 10:57:00 AM	34.6	31.5	37.0	26.0			
3/29/2004 11:02:00 AM	36.4	31.6	36.9	26.3			
4/12/2004 11:20:00 AM	35.4	31.7	36.8	26.6			
4/26/2004 12:02:00 PM	34.2	31.8	36.7	26.8			

39 Weeks Gest. Age 128.03

*Normative data are calculated based on results by Butte NF, Hopkins JM, Wong WW, Smith EO, Ellis KJ. Body composition during the first 2 years of life: an updated reference. *Pediatr Res* 2000;47:578-85. Data provided are for informational purposes only and are not intended as a substitute for advice provided by physician or other medical professional.

Customisable header

Subject information

History of %FAT measurements

Graph representing history of %FAT measurements



The infant is easily placed in the warmed test chamber



The infant is clearly visible at all time through the unit window

Reports can be created showing longitudinal changes in body composition over time with reference values for comparison



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