

Bioimpedance testing provides health care practitioners with a non-invasive tool for objectively monitoring body composition - a key indicator of health and vitality. These measurements increase the certainty of an accurate assessment and allow the practitioner to develop and prioritize nutrition and supplement programs and strategies.



The **Biodynamics BIA 450 Bioimpedance Analyzer** provides a direct readout of the impedance of the human body, and estimates of mass distribution and body water compartments.

APPLICATIONS

OBESITY. Specific mechanisms linking obesity to health risks are not fully understood, but recent research focusing on genes that express only in fat tissue has shown promise. These genes code for hormones associated with insulin resistance (type II diabetes) and cardiovascular plaques. While specific mechanisms remain unproven, the statistical coincidence of obesity and diabetes is nearly 80 percent. A body mass index of 30 or greater or lean body mass less than 75 percent for males or less than 70 percent for females are useful diagnostic criteria for obesity.

LIFESTYLE ASSESSMENT. A comprehensive wellness evaluation should be part of every lifestyle assessment, identifying personal strengths and weaknesses, and producing a program that establishes lifestyle change goals. These changes often include the reduction of excess fat mass, which affects health status, appearance, mobility, and job performance.

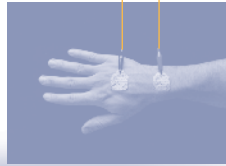
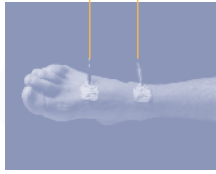
NUTRITIONAL COUNSELING. For many people, it is difficult to eat healthfully and to control weight. Research has shown that a program that includes moderate exercise, a diet lower in calories and fat, and the use of supplements can reduce body fat and increase lean body mass. The assessment of body composition allows the effectiveness of these programs to be monitored and further refined.

ATHLETIC PERFORMANCE. Large (superoptimal) lean body mass and body cell mass compartments are the hallmark of athletes - the source of high function, strength, and endurance. In response to training, the well-nourished body adds tissue to these compartments. A progressive increase in lean body mass, body cell mass, and phase angle are associated with increasing physical performance.

GERIATRICS. With aging, changes in function are due primarily to alterations in the body cell mass compartment. This compartment is functionally the most important in determining energy expenditure, protein needs, and metabolic response to physiologic stress. Candidate mechanisms include loss of motor neurons in the spine, loss of endogenous growth hormone production, dysregulation of cytokines, loss of estrogen and androgen production, inadequate protein intake, and reduced physical activity leading to a reduction in the number and size of type II muscle fibers.

The Biodynamics BIA 450 Bioimpedance Analyzer does not diagnose disease, or recommend treatment regimens, or quantify treatment effectiveness. Only a qualified health care professional can make these judgments.

***** BIOIMPEDANCE ANALYSIS *****			
Date:	11/17/11	Time:	03:13 pm
Patient:	_____		
Sex:	Male	Height:	71.5 in
Age:	39	Weight:	178.0 lbs
MEASUREMENTS RESULTS			
Phase Angle:	7.4 °		
Body Capacitance:	755 pF		
Resistance:	535.7 ohms		
Reactance:	69.2 ohms		
Mass Distribution		lbs	percent
Body Cell Mass:	67.5	37.9	
Extracellular Mass:	68.7	38.6	
Lean Body Mass:	136.2	76.5	
Fat Mass:	41.8	23.5	
Total Weight:	178.0	100.0	
ECM/BCM:	1.02		
Body Mass Index:	24.5		
Basal Metabolic Rate:	1925	cal/s	
Water Compartments		liters	percent
Intracellular Water:	26.0	59.0	
Extracellular Water:	18.1	41.0	
Total Body Water:	44.1	100.0	
TBW/Lean Body Mass:	71.4		
TBW/Total Weight:	54.6		



BIOIMPEDANCE MEASUREMENTS

- Resistance:**
 Range 200 to 1500 ohms
 Resolution 0.1 ohm
 Accuracy 0.1 percent
- Reactance:**
 Range 0 to 300 ohms
 Resolution 0.1 ohm
 Accuracy 0.2 percent
- Phase Angle:**
 Range 0 to 20 degrees
 Resolution 0.1 degree
 Accuracy 0.2 percent
- Test Current:**
 Less than 1 milliamperes
- Frequency:**
 50 kilohertz

GENERAL INFORMATION

- Dimensions:**
 12.5" W x 8.5" L x 3.25" H
 (317mm x 216mm x 83mm)
- Weight:**
 4 lb / 2 kg net
 10 lb / 4.5 kg shipping
- Temperature Range:**
 10 degrees C to 50 degrees C
- Humidity:**
 70% or less noncondensing

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TEST RESULTS

Bioimpedance analysis is the assessment of body composition using electrical tissue conductivity. With this non-invasive test procedure, the Biodynamics BIA 450 Bioimpedance Analyzer provides the following results:

Bioimpedance Measurements: a readout of the patient's resistance, reactance, and phase angle. This information is obtained through a direct measurement of the complex impedance of the human body.

Mass Distribution: an estimate of mass distribution, using the measured bioimpedance and entered patient data. Mass consists of lean body mass (or fat-free mass) and fat mass. Lean body mass is further broken down into its two key components – body cell mass and extracellular mass. Body cell mass is the total cellular mass of living cells. It is the metabolically active tissue of the body. Extracellular mass is the fluid and tissue of the body found outside the cell.

Water Compartments: total body water, and its two components – intracellular water and extracellular water. Intracellular water is the fluid contained within the cell. Healthy cells maintain their integrity and hold their fluids inside. Extracellular water is the fluid outside the cell. An increase in extracellular water may indicate disturbance in the cellular membrane.

ABOUT BIODYNAMICS

Biodynamics Corporation, founded in 1984, designs and manufactures precision bioelectrical impedance analyzers (BIA). Our products are used and preferred by thousands of medical and healthcare professionals throughout the world.

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