Professional body composition and nutrition analysis:

BODYSTAT® I500MDD

THE SCIENCE BEHIND CLINICAL BODY ASSESSMENT

www.bodystat.com
The importance of weight management has become increasingly topical over recent years. Obesity has been linked to the following diseases:

- Coronary heart disease
- Stroke
- High blood pressure
- Type 2 diabetes
- Cancers, such as endometrial, breast, and colon cancer
- High total cholesterol or high levels of triglycerides
- Liver and gallbladder disease
- Sleep apnea and respiratory problems
- Degeneration of cartilage and underlying bone within a joint (osteoarthritis)
- Reproductive health complications such as infertility
- Mental health conditions.

The Bodystat 1500MDD offers accurate body composition assessment, early cardiovascular risk detection, as well as being a perfect weight management tool for professionals and consumers alike. The Bodystat range of Bio-Impedance Analysis (BIA) devices has been used extensively in many medical research trials (copies available from our website) and has been proven to provide excellent levels of accuracy for ongoing health management.

The 1500MDD also boasts new powerful software with upgraded functionality and new early detection tools, covering everything from core cellular health to underlying disease and muscle wastage. Simple to use, the 1500MDD has been created to complement the work of the weight loss and weight management professional.

**Motivate for Improved Results**

Motivation is an essential part of effective weight management, and indeed general health. The Bodystat 1500MDD provides a visual tool to show your clients their improvement, no matter how small. Trend graphs in the software allow you to monitor progress and small changes in fat or lean mass will show significant changes in cardiac risk graphs and health management.

Using the simple software, you create a personal file for each client which can then be used to track changes over the course of treatment and remedial actions. This profile can be personalised with your own name and logo where required.

**Early Detection and Prevention**

Although the Bodystat 1500MDD is not a diagnostic device, it does provide early detection of cellular disease or illness within the body. As well as providing necessary information on body composition, the 1500MDD also shows a ‘Wellness Marker™’ or impedance ratio, demonstrating a general status in health:

- Early detection of cellular health issues
- Detection of potential underlying disease
- Detection of muscle wasting
- Changes in health status
- Malnutrition, including the clinically obese.

**Knowledge is Power**

With knowledge comes power. For your patients or clients, knowledge also means the power to inspire change, and that can transform lives – with obvious referral benefits to the health professional and organisation.

The Bodystat 1500MDD gives you increased knowledge through the measurement of:

- Fat weight
- Fat-free mass (lean)
- Total weight ranges
- Total body water
- Dry lean weight
- Body mass index
- Body fat mass index
- Fat-free mass index
- Basal metabolic rate
- Extracellular water
- Intracellular water
- Impedance raw data
- Phase Angle
- Wellness Marker
- Daily calorie requirements
- Waist / hip ratio.
BIAS BODY MANAGER PRO SOFTWARE

This program is ideal for use when subsequent repeat tests are performed on the same individual to track changes in body composition, health and wellness status. The BIAS Body Manager Pro software includes four main features:

- **Body Composition** – Providing detailed analysis of the whole body. These reports compromise the Body Composition Professional and Body Composition Simplified Reports.
- **Trend Reports** – Tracks results over a period of time to track change and monitor progress. The graphs are clear, in colour, and provide a visual for clients on which to base their efforts.
- **Health Report** – Based on the Framingham Study, this gives a general health report including smoking, diabetes, blood pressure and cholesterol. This then allows ‘what if’ scenarios with your clients, accurately predicting the benefits of giving up smoking, reducing cholesterol etc. This gives the client an immediate incentive to achieve the positive results, thereby helping the professional, motivate and retain clients.
- **Weight Loss Report** – This unique programme enables selection of varying intensity exercises and their duration, calculating the calories burned and the number of weeks required to achieve target weight.

**INTERPRETATION OF DATA**

- The highlighted Female of 50 years old appears to be MALNOURISHED and has been singled out for these reasons:
- **Highest Wellness Marker** values: The lower the marker, the healthier and more hydrated the body cells; the higher the marker, the less healthy.
- **Lowest FFMI** values: obese subjects may be identified.
- **INTERPRETATION OF DATA**

**DATA ANALYSIS OF OBESE FEMALE & MALE MEASUREMENT DATA**

**SPECIFICATION**

<table>
<thead>
<tr>
<th>MEASUREMENT</th>
<th>TECHNOLOGY</th>
<th>BIOMEDICAL ANALYSIS</th>
<th>BATTERY MANAGEMENT</th>
<th>OPERATING TEMPERATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology</strong></td>
<td>Bio-Impedance Analysis (BIA) Lock-In Signal Conversion Technology</td>
<td></td>
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<tr>
<td><strong>Impedance Measuring Range</strong></td>
<td>20 - 1800 ohms</td>
<td></td>
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<tr>
<td><strong>Accuracy</strong></td>
<td>Impedance ±3 ohms</td>
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<tr>
<td><strong>Test Current</strong></td>
<td>250 Micro-Amps RMS (Root Mean Square)</td>
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<tr>
<td><strong>Frequency</strong></td>
<td>5 &amp; 50 kilohertz</td>
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<tr>
<td><strong>Calibrations</strong></td>
<td>4 calibrators are supplied for independent verification from time to time</td>
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<tr>
<td><strong>Configuration</strong></td>
<td>z lead wires (removable)</td>
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<tr>
<td><strong>Computation Time</strong></td>
<td>6 seconds</td>
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<tr>
<td><strong>PC Communication</strong></td>
<td>Bluetooth wireless interface</td>
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</table>

**GENERAL**

- **Operating temperature** 5°C to +40°C
- **Storage temperature** 5°C to +60°C
- **Relative Humidity** 0% to 80% non-condensing
- **Atmospheric Pressure** 850 hPa to 1060 hPa
- **Internal Power Source** Duracell M3200 alkaline batteries, 6 x AA LR6 1.5v non-rechargeable
- **Dimensions** 240mm L x 255mm W x 30mm H (9.44” L x 6.10” W x 1.18” H)
- **Weight** 1.7 kg (3.75 lbs)
- **Low Battery** Displays a warning when the battery power is low and needs replacement. If the unit has been switched ON and no data has been entered for 60 seconds, an alarm signal sounds to warn that the unit is still on and that battery power is being utilized. Automatic shut off if left unattended for 15 minutes
- **Service** There are no servicable parts other than the need for periodic battery replacement.
- **Quality Standards** Manufactured to strict ISO 13485:2003 quality standards. Fully accredited by the Medical Devices Directive (MDD) with it’s CE0210 marking and for EN60601, also FDA cleared

**BIAS BODY MANAGER PRO SOFTWARE**

- Suitable assessment for adults and children from 6 years of age
- Portable and battery-operated
- Bluetooth for downloading directly to software
- BIAS Body Manager Pro software included
- Colour trending graphs to track progress
- Health Report and Cardiac Risk Assessment
- The most advanced body composition technology from one of the world’s leading developers of Bio Impedance Analysis (BIA) technology
- Backed by more than 65 years collective experience in BIA and fitness assessment
PHASE ANGLE: IDENTIFY NUTRITIONAL STATUS

ADVANCED NUTRITIONAL ANALYSIS

Bioelectrical Impedance Analysis (BIA) is becoming a preferred method to establish and monitor malnutrition. Many research papers have examined the relationship between Phase Angle and malnutrition and have found a correlation between low Phase Angle and higher nutritional risk. Population groups used in both research and clinical practice include nephrology, HIV, oncology and surgical patients.

Alternative methods, such as blood tests, arm circumferences, and skin-fold tests are time consuming, require training and may be affected by other nutritional changes. Traditional methods may also miss subtle changes in body cell mass (intracellular water and metabolic tissue). Malnutrition is characterised by changes in the integrity of the cellular membrane, marked by fluid shifts. Study of Phase Angle as a reflection of water distribution between ICW/ECW water is an easy, quick, non-invasive way to ascertain nutritional status.

A low Phase Angle is indicative of diminished cellular integrity and thus a reduced survival time. Equally, a higher Phase Angle suggests larger quantities of intact cell membranes and thriving health.

The Phase Angle reflects the relative contribution of body fluid (resistance) and cellular membrane integrity (reactance). Malnutrition reduces cellular membrane mass and integrity and promotes shifts in fluid balance. As a consequence of these changes the Phase Angle decreases. Conversely, a higher Phase Angle implies larger body cell mass and preserved membrane integrity.

The greater the cell’s capacitance, the greater the difference in phase shift between voltage and the current. Consequently the higher the Phase Angle.

-- COPD -- Fat-free mass is an independent predictor of mortality irrespective of fat mass. Supports the inclusion of body-composition assessment as a systematic marker of disease severity in COPD staging.


-- DIABETICS -- Overweight and obesity are associated with the development of type 2 diabetes. Thus, it is important for clinicians to accurately measure and monitor the body composition of at-risk individuals and patients with diabetes.


-- EATING DISORDERS -- Bulimic patients with a past had lower percentage of body fat, lower muscle mass and higher percentage of extra-cellular fluid.


-- ELDERLY -- Improved estimation of body composition in elderly subjects by use of age-specific prediction equations.

Reilly JJ et al. (September 1994) The European Group for Research into Physical Activity for the Elderly II International Conference

-- HIV/AIDS -- Body composition testing can be used to monitor lipodystrophy and wasting, two problems associated with HIV.

Loss of BCM (5% loss within 6 months) is a significant contributor to the morbidity and mortality associated with wasting diseases.

Cichock, M (2007) American Heart Association

-- MALNUTRITION/UNDERNUTRITION/ NUTRITION -- Malnutrition results in a loss of body cell mass (BCM) accompanied by an expansion of the extracellular mass (ECM).


-- OBESITY -- Severe obesity is accompanied by large increases in fat-mass and alterations in the composition of fat-free mass, in particular total body water and its extra-cellular compartment.


-- PAEDIATRICS -- Body composition in children is of increasing interest within the contexts of childhood obesity, clinical management of patients and nutritional programming as a pathway to adult disease.


CLINICAL PRACTICE APPLICATIONS

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Not to diagnose or treat any medical condition.
ABOUT BODYSTAT

Bodystat Ltd, based on the Isle of Man (British Isles), has been established since 1990 and is a registered ISO 13485:2003 company. We specialise solely in BIA Technology and are dedicated to expanding the knowledge of this to improve health and well-being. We have an extensive range of research papers (available on our website) dedicated solely as non-commercial, free materials for educators.

Our devices are manufactured in Europe, made to the highest specifications and use only the best electrical components. The high quality of our devices ensures accurate results that are both reproducible and reliable.

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