

BIO | ANALOGICS®

HEALTH MANAGEMENT SYSTEM

BODY COMPOSITION MODULE

TABLE OF CONTENTS

- 1.0 Overview
 - 1.1 Weight Loss Recommendation
 - 1.2 Weight Maintenance Recommendation
 - 1.3 Weight Gain Recommendation
- 2.0 Data Requirements
- 3.0 Body Composition History
- 4.0 Getting Started
- 5.0 Installation of Body Composition Module
- 6.0 Data Acquisition Procedures
- 7.0 Taking Proper Measurements
 - 7.1 Weight:
 - 7.2 Height:
 - 7.3 BioImpedance
- 8.0 Taking a BioImpedance Reading
 - 8.1 Performing an ELG Test
 - 8.1.1 First Sensor Placement
 - 8.1.2 Second Sensor Attachment
 - 8.1.3 Third Sensor Placement
 - 8.1.4 Fourth Sensor Placement
 - 8.2 Taking a BioImpedance Reading
 - 8.2.1 Calibration
 - 8.2.2 Operation
 - 8.2.3 Anthro Measurements
- 9.0 Body Composition Report
- 10.0 Select Client
 - 10.1: Data Input
 - 10.2: Body Composition Input
 - 10.3: Review Weight/Goal Fat Percent
 - 10.4: Body Composition Report
 - 10.5: Option to re-Print Body Composition Reports

HEALTH MANAGEMENT SYSTEM

BODY COMPOSITION MODULE

1.0 Overview

The body composition module of the HMS program will allow you to input specific client data and produce body composition reports. The program was designed to be used in conjunction with BioAnalogs ELG system. However can be used with any methodology of body composition, which produces an absolute value in percent body fat.

Based on the client's predicted body composition, you are able to define an appropriate review weight and / or a client's goal fat percent. This information can be used in the nutrition plan to determine the clients specific diet needs.

1.1 Weight Loss Recommendation

If you wish to select a weight loss recommendation for a client, simply input a review weight, which is lower than the client's current weight. A goal percent fat based on the clients review weight and lean body mass will be calculated.

NOTE: ONCE A WEIGHT LOSS RECOMMENDATION HAS BEEN MADE, YOU CAN NOT OVER RIDE THIS RECOMMENDATION IN THE NUTRITION PLAN AND RECOMMEND MAINTENANCE OR A WEIGHT GAIN PROGRAM.

1.2 Weight Maintenance Recommendation

If you wish to select a weight maintenance recommendation for a client, simply input a review weight, which is the same as the client's current weight. Goal percent fat based on the client's age and sex in addition to lean body mass will be calculated.

NOTE: ONCE A WEIGHT MAINTENANCE RECOMMENDATION HAS BEEN MADE, YOU CAN NOT OVER RIDE THIS RECOMMENDATION IN THE NUTRITION PLAN AND RECOMMEND A WEIGHT GAIN PROGRAM OR A WEIGHT LOSS PROGRAM. THE RECOMMENDATION YOU MAKE HERE WILL DICTATE THE WEIGHT MANAGEMENT PROGRAM YOU CAN RECOMMENDED.

1.3 Weight Gain Recommendation

If you wish to select a weight gain recommendation for a client, simply input a review weight, which is greater than the client's current weight. A goal percent fat based on the clients review weight and lean body mass will be calculated.

NOTE: ONCE A WEIGHT GAIN RECOMMENDATION HAS BEEN MADE, YOU CAN NOT OVERRIDE THIS RECOMMENDATION IN THE NUTRITION PLAN AND RECOMMEND A WEIGHT MAINTENANCE PROGRAM OR A WEIGHT LOSS PROGRAM.

2.0 Data Requirements

In order to produce body composition reports with the HMS program, you must first install the System Module (See System Module installation procedures). The following client data is required to produce a body composition report. See the data acquisition procedures in this section of the manual for instructions.

2.1 Height

(input into System Module)

2.2 Age

(input into System Module)

2.3 Sex

(input into System Module)

2.4 Weight

(input into body composition module)

2.5 Impedance (or percent body fat)

(input into body composition module)

3.0 Body Composition History

The HMS system keeps a complete client history of body composition analysis including percent body fat, body weight and lean body mass. The results of this history can be accessed from the body composition module via the Information section of the upper task bar and then selecting Client Reports.

4.0 Getting Started

Before you can install the body composition module you must first install the System Module. If you have not installed this module you should refer to the appropriate section of the System Module manual and complete the installation procedures.

5.0 Installation of Body Composition Module

Once the HMS program is installed, the system will automatically prompt you to install the system modules you have purchased. To install the modules, simply select the next button. You will be prompted to select your disk drive (A: or B:). Once you have input the proper selection, select the next button and the module will automatically install. You may load as many modules as you have at this time.

If you choose to load a module at another time, simply select the Module option from the task bar at the top of the screen and choose to Install a new module. You will be prompted to select your disk drive (A: or B:). Once you have input the proper selection, select the next button and the module will automatically install.

You should now review the appropriate documentation for each module installed.

6.0 Data Acquisition Procedures

It is important to record all client data properly onto a data acquisition form as outlined in appendix A of this section for accurate ELG body composition testing. The most important thing to remember is to perform each ELG tests the same way every time.

7.0 Taking Proper Measurements

7.1 Weight

It is very important to record the actual weight of each client. Never accept data supplied by the client. You should use a high-quality medical scale. Subtract three pounds for men and two pounds for women for the weight of clothing.

7.2 Height

In addition to weight, you must measure each client's height in inches. Most physician type scale have a height bar built in. Never use client supplied data.

7.3 BioImpedance

The BioAnalogics ElectroLipoGraph (ELG) Bio Ohm Metre is used to measure each client's BioImpedance which will be entered into the software along with the biological data to calculate their body composition.

8.0 Taking a BioImpedance Reading

The following procedures should be utilized to perform an ELG test. The BioImpedance Metre operates by a 9-volt battery located on the bottom of the metre.

The battery has a life expectancy of approximately 500 ELG tests. There is a Low Battery light on the front panel of the metre. When this light is illuminated you should immediately replace the battery. If a LO BAT signal should appear, simply remove the four (4) mounting screws on the bottom of the metre with a Phillips screw driver, remove the battery and replace it with a fresh one. Once replaced, be sure to re-attach the rubber feet and screws.

Review the following diagram of the ELG metre and familiarize yourself with its operational features. Note the LCD screen on the upper panel. The patient's Impedance will read out here. Also note the Calibrate and Operate buttons. (See Fig. 1)

Fig. 1

THE BIOIMPEDANCE METRE

METRE OPERATION FEATURES

- | | |
|----------------------|---------------------|
| A) LCD SCREEN | B) LEAD CONNECTOR |
| C) OPERATE BUTTON | D) CALIBRATE BUTTON |
| E) LOW BATTERY LIGHT | |

8.1 Performing an ELG Test

You will need a fresh set of sealed BioAnalogics ELG sensors (4 sensors) to perform an ELG test. Note: only BIOANALOGICS ELG sensors are recommended. Do not reuse sensors. When attaching the ELG sensors, always have the "attachment tab" pointed away from the body.

8.1.1 First Sensor Placement

The first sensor should be placed on the back of the right hand near the wrist. Locate the "Styloid Process" (the bump near the back of the wrist). Place the center of the first sensor in the middle of the wrist just across from the styloid process. The Red Clip from the leads marked for the hand will go here. (See Fig. 1 & 4)

8.1.2 Second Sensor Attachment

The second sensor should be placed on the back of the hand, directly behind the knuckle of the index finger. (See Fig. 1 & 4)

8.1.3 Third Sensor Placement

The third sensor should be placed on top of the ankle, bisecting a line between the Medial and Lateral Malleoli (the bumps located on the inside and outside of the ankle). The RED clip onto the sensor from the leads marked for the foot will go here. (See Fig. 2-3-5)

8.1.4 Fourth Sensor Placement

The fourth sensor should be placed directly behind the joint of the great toe. Place the BLACK clip will go here. (See Fig. 2-3-5)

Finally, attach the clips starting with the Red Clip and the wrist and finishing with the Black Clip on the foot.

8.2 Taking a BioImpedance Reading

Once the patient has been properly connected to the ELG Metre, you are ready to measure their BioImpedance. Be sure that the patient is supine or standing (laying or standing, arms and legs slightly spread) on a non-conductive surface such as an exam table or massage table.

NOTE: THE FOLLOWING PROCEDURES:

8.2.1 Calibration

Press the Calibrate and Operate buttons at the same time. The LCD screen should read 000 indicating that the Metre is in calibration. If a number other than 000 appears you should contact BIOANALOGICS customer service.

8.2.2 Operation

Once the Metre calibration has been checked, you should release the calibrate button and continue to press the Operate button. The patients BioImpedance will appear on the LCD screen and the number should be recorded onto a Data Acquisition form (Appendix A) so that it may be input into the ELG software. A typical range is 300 to 700 ohms.

NOTE: IF THE ELG METRE FAILS TO "STABILIZE" ONTO A NUMBER, CHECK THE PATIENT LEAD CONNECTIONS. IF THE METRE CONTINUES TO MALFUNCTION, REPLACE THE SENSORS AND ATTEMPT TO TAKE ANOTHER READING. IF THE METRE CONTINUES TO MALFUNCTION, CONTACT CUSTOMER SERVICE.

8.2.3 Anthro Measurements (Optional)

One of the features of the HMS software is the ability to input Anthropometric data about the patient into the program along with the Bio- Impedance number used to predict body composition. This technique is known as Anthro-Impedance. Special populations such as the very lean or morbidly obese and research populations may benefit from the addition of the Anthro measurements.

To activate the Anthro-Impedance calculations, select the "Anthro's" option. The software program will prompt you with the required measurements for each patient. Note that all of these measurements are in centimeters. A soft cloth tape measure is recommended.

After the patient's impedance value has been taken, record the value on the data acquisition form. You are now ready to produce a body composition report.

9.0 Body Composition Report

Before you can produce an ELG body composition report you must complete the following procedures.

1. Install System Module
2. Install Body Composition Module
3. Complete data acquisition Procedures

10.0 Select Client

From the Main Module either select the option for a "NEW CLIENT" or "RECALL" a client you wish to perform a body composition test for.

NOTE: IF THIS IS A TEST FOR A NEW CLIENT, THE CLIENT DATA INPUT PROCEDURES OUTLINED IN THE MAIN MODULE SECTION OF THIS MANUAL WILL BE REQUIRED.

10.1: Data Input

After you have a previous client or input a new client, you should review the data base information to make sure that it is correct. Applicable changes may be made by selecting the "Change" option. After the client data has been confirmed, use the mouse to select the "Body Composition" option from the HMS task bar or use the Next button.

10.2: Body Composition Input

Once you have selected the "Body Composition" option, you will be prompted to input specific client input including Weight: (in pounds or kilograms) and Impedance.

Note that based on these inputs a client review weight and goal percent fat will be prompted. The following options are available:

10.3: Review Weight/Goal Fat Percent

Each client will be assigned a "Review Weight" and a "Goal Fat Percent" based on the available information. These are only guidelines and can be modified based on appropriate user intervention. If you wish to modify either recommendation, simply use the "TAB" key or the computer mouse to highlight the appropriate modification and input the corrected value.

NOTE: EACH CLIENTS RECOMMENDATIONS ARE BASED ON THEIR ASSESSED LEAN BODY MASS (LBM). THUS THE CLIENTS REVIEW WEIGHT IS CALCULATED BASED ON THE LBM PLUS THE GOAL PERCENT OF BODY FAT.

10.4: Body Composition Report

There are two (2) main options at this point once you have completed the body composition information. You can either produce a body composition report (by selecting the "Finished" button or you can continue with other applicable modules such as nutrition and exercise reports. If you do not have nutrition and exercise modules and wish to use them for client recommendations, you must first contact BioAnalogics and have the modules installed.

Once the appropriate information has been installed to produce a body composition report, simply select the "Finished" option from the menu. You will then be prompted to the report generator and produce a body composition report.

10.5: Option to re-Print Body Composition Reports

Re-printing or modifying Body Composition Reports is simple. You must first select a client from the "Recall" option, then select the appropriate date. Once the client data appears on the screen, you can either modify any appropriate field or simply produce a report by selecting the "Finish" option. You will then return to the print manager allowing you to re-produce a client body composition report.