



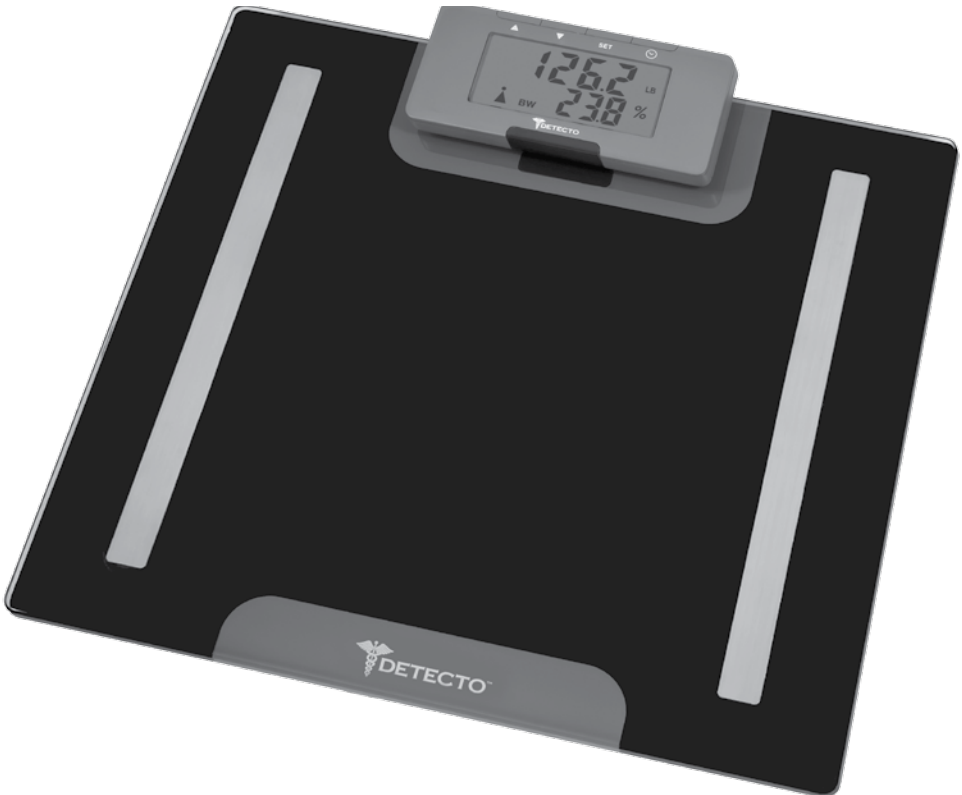
OVER **100** YEARS  
OF MEDICAL ACCURACY

# BODY FAT SCALE

BODY WATER, BMI (BODY MASS INDEX)  
WITH DAILY CALORIE REQUIREMENT

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**MODEL #D410**



**USER MANUAL**

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Congratulations! You have purchased a precision health monitoring product that should provide you with years of accurate use. To assure you obtain the best performance please read the following set-up and use instructions carefully before using the scale.

#### INSTRUCTION MANUAL

The DETECTO body fat scale is designed and manufactured in a facility certified ISO 9001 Quality, ISO 14001 Environment, OHSAS 18001 Health and Safety Management Systems and ISO 13485 Medical Devices Quality Management System. The scale uses the method of Bioelectrical Impedance Analysis (BIA) to estimate body fat, total body water, bone mass and muscle mass. It sends a harmless amount of electricity into the body, then estimates from the measured impedance of the body, the percentage of total body water, percentage body fat, percentage bone mass and percentage muscle mass. The body fat scale is also equipped with an "Athlete Mode" for athletes whose body build is different from non-athletes.




Based on your percentage body fat, it also suggests daily calorie reference for your present weight.

Note: Read this Instruction Manual carefully and keep it handy for future reference.

#### NOTES ON SAFETY

Please read this section carefully to familiarize yourself with features and operations before using the unit.

- The warning signs and the sample icons shown here are listed in order for you to use this product safely and correctly as well as to prevent product damage, risk and injury to you and others.
- The icons and meanings are as follows:

 PRECAUTION NOTICE	Indicates the right conditions to use the product and to prevent damage, risk and injury.
 IMPORTANT NOTICE TO USERS	Indicates important notices users should read before using the product.
 CARE AND MAINTENANCE	Indicates matters in which the possibility of damage may happen as a result of incorrect handling and improper maintenance.

## INTENDED USE

This scale is intended to measure body weight and impedance and estimate percentage of body fat and body water, muscular mass using BIA (Bioelectrical Impedance Analysis). It is intended for use by healthy children 10-17 years old and healthy adults with active, moderately active, to inactive lifestyles for body composition assessment in the home environment.

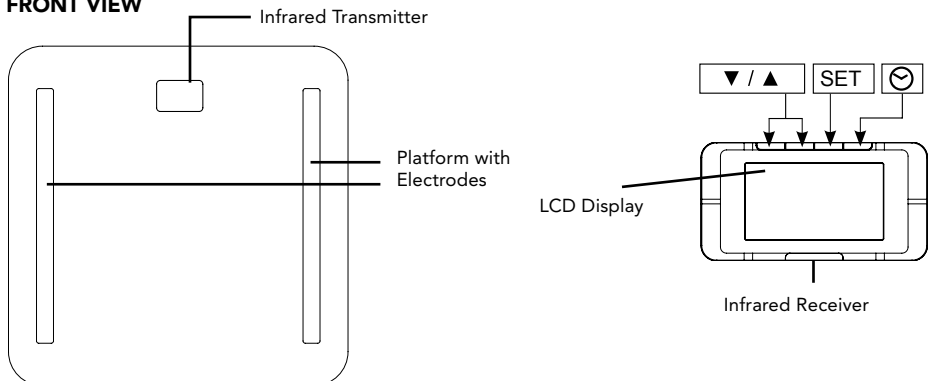
## ⚠ PRECAUTION NOTICE

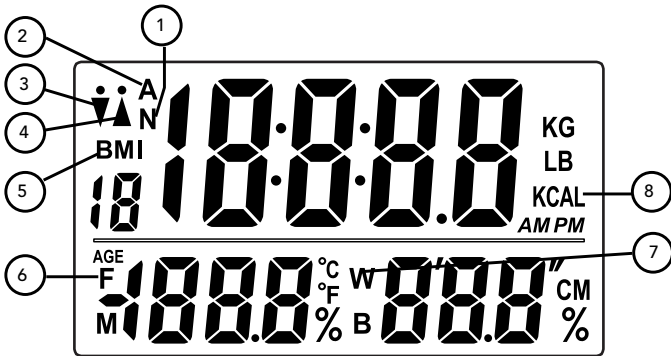
- Do not use the scale on people who have body implants such as a pacemaker, artificial limbs, contraceptive devices, or metal plates or screws. It may cause the device to malfunction or produce an inaccurate result. When in doubt, consult your physician.
- Do not disassemble the scale as incorrect handling may cause injury.

## ⚠ PRECAUTION NOTICE

- This product is intended for adults and children (ages 10 to 85).
- Make sure use only the type of battery stated (see section "PREPARATION BEFORE USE").
- Be sure there is a clear line of sight between the Infrared Transmitter (on the Scale) and the Infrared Receiver (on the Remote Display Unit).
- The "Athlete" mode is only applied to age 15 or above.
- Body fat percentage estimates will vary with the amount of water in the body, and can be affected by dehydration or over-hydration due to such factors as alcohol consumption, menstruation, illness, intense exercise, etc.
- Do not use on pregnant women. The result is inaccurate and effects on the fetus are unknown.
- For body fat and body water estimates, always estimate in bare feet.

## PRODUCT DESCRIPTION FRONT VIEW





1. Normal Mode
2. Athlete Mode
3. Male Icon
4. Female Icon
5. Body Mass Index
6. Body Fat %
7. Total Body Water %
8. Daily Calorie

### FUNCTION KEYS

- ▲ & ▼
- Change value of Height, Age and toggle between Male and Female; toggle between Athlete and Normal mode in Body Fat function
- Adjust the time in Clock Setting Mode
- Select memory in Memory mode & Recall mode
- Toggle between kg and lb in Unit Setting Mode

### SET

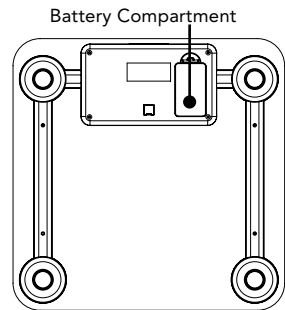
- Confirmation button for selection
- Enter unit setting mode

### KEYS ☺

- Enter clock mode
- Select 12 / 24 Hour Format and Fahrenheit/Celsius

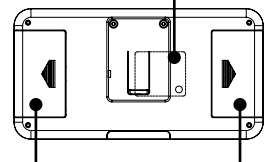
### BACK VIEW

(Scale Unit)



(Remote Display Unit)

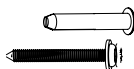
CR2032 Lithium Battery Compartment



2 pcs AAA Alkaline Battery Compartment

### ITEMS INCLUDED IN THE PACKAGE

- Scale unit
- 1 pc remote display unit
- 1 pc wall mounting bracket
- 4 pcs plastic wall plugs
- 4 pcs M3x25 screws



## PREPARATION BEFORE USE

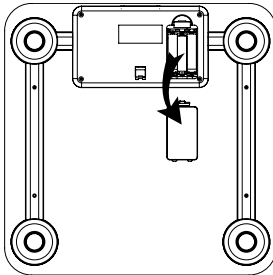
### 1. Insert the Battery

Open the battery cover on the back of the scale unit. Insert 3 pieces AAA alkaline batteries (not included).

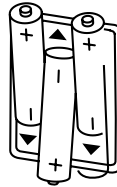
Open the battery cover on the back of the wireless remote display unit. Insert 2 pieces AAA alkaline batteries separately in two battery compartment (not included). Remove the red strip from CR2032 lithium battery compartment in first use or insert the battery after replacement.

Be sure that the polarity of the batteries is set properly for proper function. If you do not intend to use this unit for a prolonged period of time, it is advisable to remove the batteries before storage.

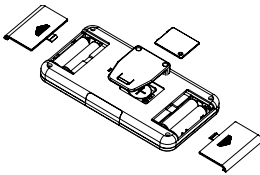
Open the battery door Scale



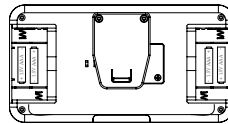
3 pieces AAA alkaline batteries



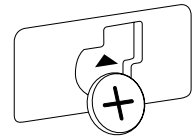
Open the battery door Remote



Direction of 4 pcs AAA batteries



Direction of the CR2032 battery



### ⚠ TIPS

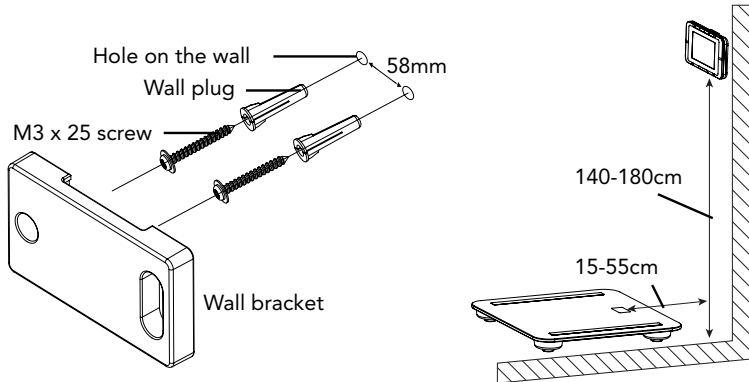
1. Replace batteries in the scale unit, when **Lo** is displayed.
2. Replace batteries in the remote display unit, when **bAtt** is displayed.
3. Do not remove the CR2032 lithium battery and 3 pcs AAA batteries at the same time, otherwise clock and memory must be reset again.

### ⚠ IMPORTANT NOTICE TO USERS!

1. Choose the location to mount the display on the wall. The location should be free of temperature extremes and water. It should be where the display can be easily viewed and operated. Keep away from direct sunlight and where the operator easily reaches the display.
2. Make sure the structure and mounting hardware is solid enough to support the display. The mounting brackets should be securely fastened to the wall so that it cannot loose from the mounting surface.

## 1. Fix the Wall Mounting Bracket

- a. Drill two holes on the wall with the distance in between two holes is 58mm (Fig.1)  
Make sure the height of the holes is between 140cm and 180cm from floor (Fig.2).



- b. Insert two plastic wall plugs into the holes until they are flush with the wall. Place the bracket against the wall and insert two M3x25 screws through the holes into the wall plug. Use screwdriver to tighten the screws (Fig.1).
- c. Hang the remote display unit in the bracket on the wall.

## 3. Set the Right Position

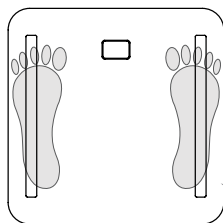
Use the scale on a flat and hard floor surface. And make sure the scale in front of the remote with the distance from 15cm to 55cm (Fig.2).

## 4. Start-up the Scale

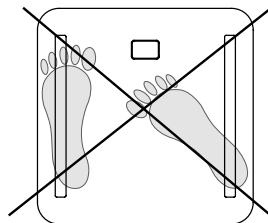
Press lightly on the scale platform to start-up the scale, the display shows "0000" and will cyclic show on screen. Then display returns to clock mode. The scale is ready for use.

## OPERATION

The accuracy of the results depends on how you stand on the scale. Position your feet to contact maximally the metal electrodes on the platform. This ensures the best contact between your feet and the metal contacts. Stay on the scale until the body fat estimation is completed and the result is displayed.




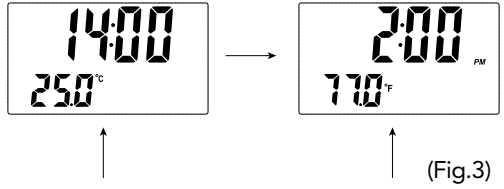
Heels centered electrodes ( YES )



Heels not touching on electrodes ( NO )




## CLOCK AND TEMPERATURE SETTING

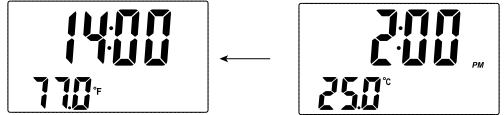
- 1.12 / 24 Hour Format and Fahrenheit/Celsius Selection  
In Clock Mode, press [  ] key to toggle between different hour and temperature format (Fig.3)





(Fig.3)

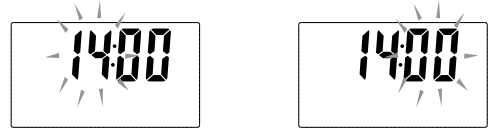
## 2. TIME SETTING

- a. Press and hold [  ] button for 2 seconds to enter time setting mode, the hour digits will blink (Fig.4). Press [  ] or [  ] to adjust the hour. Press [SET] to confirm.





(Fig.4)

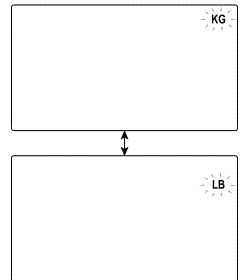
- b. The minute digits will blink, press [  ] or [  ] to change the minute digit (Fig.5). Press [SET] to confirm and it will return to clock mode automatically.



(Fig.5)

## 3. UNIT SETTING

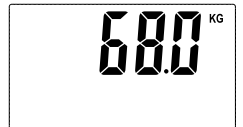
- a. When clock is displayed, press and hold [SET] button for 2 seconds to enter unit setting.
- b. Press [  ] or [  ] to toggle between the unit kg/cm and lb/in (Fig.6).
- c. Press [SET] to confirm the desired unit, it will return to the clock mode automatically.



(Fig.6)

## WEIGHING-ONLY OPERATION

- a. Step onto the scale and stand still, " - " will cyclic show on LCD while the weight is computed.
- b. The screen displays the weight (Fig.7).
- c. Then it will return to clock mode automatically.



(Fig.7)



## BODY FAT AND TOTAL BODY WATER ESTIMATING OPERATION WITH USER MEMORY

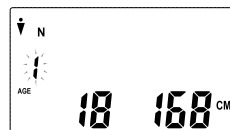
A few steps must be followed before estimating body fat and total body water.

### PROGRAM PERSONAL DATA

Input the user's height, age, gender and normal or athlete mode. Once the information is memorized, it will only need to be reentered if there is a change to the data.

#### 1. Set Memory

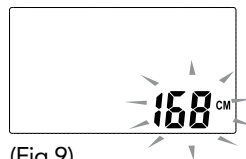
In clock mode, press [▲] or [▼] key to enter body fat and total body water estimation mode. The memory location blinks (Fig.8). Press [▲] or [▼] key to select a memory location (1-12). Press [SET] to confirm.



(Fig.8)

#### 2. Set Height

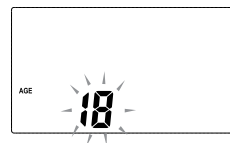
The height blinks (Fig.9). Press [▲] or [▼] key to adjust the height. Press [SET] to confirm.



(Fig.9)

#### 3. Set Age

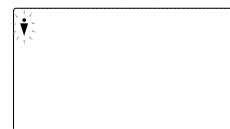
The age blinks (Fig.10). Press [▲] or [▼] key to adjust the age. Press [SET] to confirm.



(Fig.10)

#### 4. Select Gender

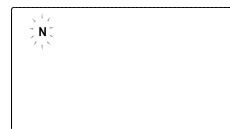
The gender icon blinks (Fig.11). Press [▲] or [▼] key to toggle between the male (♂) and female (♀). Press [SET] to conform



(Fig.11)

#### 5. Select Normal or Athlete Mode

The Normal icon blinks (Fig.12). Press [▲] or [▼] key to toggle between normal (N) and athlete (A). Press [SET] to confirm all settings. All personal information stored to memory will be displayed.

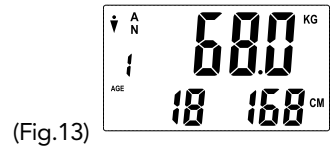


(Fig.12)

NOTE: Athlete mode is only available for those 15-85 years of age. For those aged 14 or under, this step is automatically bypassed. (See section: "**Why is the Athlete Mode necessary in a Body Fat Analyzer?**")

## 6. Measuring

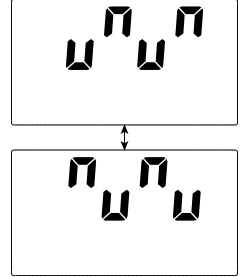
Step on the scale with bare feet and stand still while the weight is being measured. Then the screen displays the weight for 2 seconds (Fig.13).



(Fig.13)

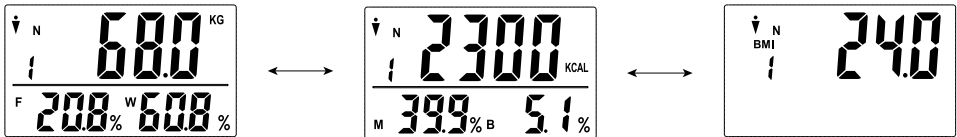
## 7. Stay on the scale during the whole computation process.

Then the scale starts to compute your body composition. The screen displays the measurement pattern while computing (Fig.14).



(Fig.14)

## 8. Then the weight, body fat % (F) and total body water % (W) are displayed. (B) and daily calorie estimates (Kcal) are displayed. Then the value of BMI is displayed around 3 seconds, 2 times sequentially (Fig.15). Then it will return to clock mode.



(Fig.15)

## BODY FAT AND TOTAL BODY WATER ESTIMATING OPERATION WITH USER MEMORY

The scale features 12 personal memory settings. This allows users to store and recall their own height, age, gender and normal/athlete mode selection for frequently using.

1. While in clock mode, press the [ ▲ ] or [ ▼ ] key to toggle between memory locations. The screen displays the memory location, height, age, gender and normal/athlete selection.
2. Follow the steps 6-8 in the section "BODY FAT AND TOTAL BODY WATER ESTIMATION OPERATION".

## PROBLEM SOLVING AND QUESTIONS

- 1. No weight is displayed?** Check if the scale is powered up and started up. If not, please refer to the section "Preparation Before Use".
- 2. Why does the display read "Lo" or "bAtt"?** Battery is running low. When "Lo" displays, replace batteries in scale unit; when "bAtt" displays, replace batteries in the remote display unit.
- 3. The message displayed "----".** Negative weight. Step off the scale and wait until the scale automatically switches off. The scale is ready for use again.
- 4. The message displayed "Err 0".** Initialization error. Step off the scale and wait until the scale automatically switches off. Start the scale again by pressing lightly on the scale platform to re-initialize the scale, the display shows "0000" and then returns to clock mode. The scale is ready for use again.
- 5. The message displays "Err1".** Instability error. Step off the scale and wait until the scale automatically switches off. Step on the scale to repeat measurement again, stand still while computation is in process.
- 6. The message displays "Err2" when measuring.** Overload warning. Remove the weight immediately; otherwise, permanent damage to the scale will occur.
- 7. The message displays "Err 3" when estimating body fat and total body water values.** Measurement error. Impedance cannot be measured. Please make sure that you are standing still on the scale and maintaining maximum contact between your feet and the metal contacts. If not, please refer to "Operation" section. You may need to moisten your feet to improve the electrical contact. Percentage total body water is out of range. Moistening your feet may help to improve the electrical contact.
- 8. After I tried the corrective actions from Er 1 to Er 3, I still can't solve the problem.**  
If Err 1 to Err 3 persists after following the corrective actions, remove battery and reinsert battery after 1 minute.
- 9. I have tried all corrective actions, but still can't solve the problem.**  
Please contact your sales representative.



## CARE AND MAINTENANCE

1. Do not disassemble the scale other than replacing the battery; it contains no user serviceable parts. Damage to the scale may occur as a result of improper handling.
2. Remove battery when the scale is not used for a prolonged period of time.
3. Clean the scale after use with a dampened cloth. Do not use solvents or immerse the unit in water.
4. Avoid excessive impact or vibration to the scale, such as dropping it onto the floor.

## PRODUCT SPECIFICATIONS

1. High precision STRAIN GAUGE technology for weight measurement
2. Bioelectrical Impedance Analysis (BIA) technology for body fat and body waterpercentage, bone and muscle mass estimations
3. Provides Daily Calorie Requirement (DCR) and BMI information
4. Wireless infrared remote display unit with clock and temperature feature
5. Athlete (for age 15 or above) or Normal Mode selection
6. Slim design
7. 12-user memories
8. 4-button operation
9. Integrated information readout
10. Auto-on and auto-off function
11. Power saving LCD readout
12. Low battery indicator
13. Capacity: 182kg, 400lb
14. Graduation: 0.1kg, 0.2lb
15. Body fat graduation: 0.1%
16. Muscle mass graduation: 0.1%
17. Age range from 10 to 85 years
20. Height range from 75 to 225cm (2'5" to 7'4")
21. Body fat range: 4 to 60%
22. Scale unit operates with 3 pieces AAA alkaline batteries (not included); remote display unit operates with 4 pieces AAA alkaline batteries (not included) and 1 CR2032 lithium battery (included)
23. Accuracy of weight measurement:  $\pm 0.5\text{kg}$  (7.5kg ~ 65kg);  $\pm 0.8\text{kg}$  (65kg ~ 135kg);  $\pm 1.2\text{kg}$  (135kg ~ 182kg)
24. Output power for Body Fat Analyzer:  $<300\mu\text{A}$

## EDUCATION INFORMATION

Before using the scale you should know ...

The absolute weight traditionally determines whether or not a person is obese. Weight change in itself does not indicate whether it was the weight of body fat or muscle that had changed. In weight management, it is desirable that muscle mass be maintained while body fat is lost. Thus, monitoring the percentage fat of the body is an important step toward successful weight management and body health.

«The optimal %BF of an individual varies according to age and gender.  
The table as follows may be used as a guide:

## Standard for Men

(Source: University of Illinois Medical Center, Chicago, USA)

Rating	Age				
	20-29	30-39	40-49	50-59	60+
Low	<13	<14	<16	<17	<18
Optimal	14-20	15-21	17-23	18-24	19-25
Moderate	21-23	22-24	24-26	25-27	26-28
High	> 23	>24	>26	>27	>28

## Standard for Women

(Source: University of Illinois Medical Center, Chicago, USA)

Rating	Age				
	20-29	30-39	40-49	50-59	60+
Low	<19	<20	<21	<22	<23
Optimal	20-28	21-29	22-30	23-31	24-32
Moderate	29-31	30-32	31-33	32-33	33-35
High	> 31	>32	>33	>34	>35

### 2. How is percentage body fat (%BF) estimated?

The percentage of BF is measured by a method called Bioelectrical Impedance Analysis (BIA). The use of BIA to estimate body fat has been pioneered since the seventies. It was only in the past decade that the estimation of body fat using BIA technology was successfully offered to the consumer as a compact bathroom scale. With BIA technology, a low intensity electrical signal is sent through the body. The signal is very low and causes no bodily harm. Depending on the amount of body fat of the individual, the electrical signal will flow with a different degree of difficulty. The difficulty with which a signal flows through the body is called electrical impedance. Hence, by measuring the electrical impedance and applying to the data a proprietary algorithm, %BF can be estimated. Please note that the percentage of body fat and body water will not add up to 100%.

**Please be reminded that the %BF estimated with the scale represents only a good approximation of your actual body fat. There exist clinical methods of estimating body fat that can be ordered by your physician**

### 3. Why is it important to monitor percentage Total Body Water (%TBW) in the body?

Water is an essential component of the body and its level is one of the health indicators. Water makes up approximately between 50-70% of the body's weight. It is present proportionally more in lean tissue compared to fat tissue. Water is a medium for biochemical reactions that regulate body functions. Waste products are carried in water from cells for excretion in urine and sweat. Water provides form to cells; helps to maintain body temperature; provides moisture to skin and mucosa; cushions vital organs; lubricates joints and is a component of many body fluids. The amount of water in the body fluctuates with the hydration level of the body and state of health. Monitoring the level of body water can be a useful tool for one's health maintenance. Similar to body fat estimation, the %TBW function provided in this scale is based on BIA.

The estimated %TBW may vary according to your hydration level, that is, how much water you have drunk or how much you have sweated immediately prior to the estimation. For better accuracy, avoid fluctuation in hydration level prior to the estimation. The accuracy of the scale in estimating TBW will also decrease with individuals suffering from diseases that tend to accumulate water in the body.

The optimal %TBW of an individual varies according to age and gender. **The table as follows may be used as a guide:**  
**(Source: University of Illinois Medical Center, Chicago, USA)**

	<b>%BF Range</b>	<b>Optimal % TBW Range</b>	<b>Average %SM Range</b>
<b>Men</b>	4 to 14%	70 to 63%	52 to 41%
	15 to 21%	63 to 58%	46 to 38%
	22 to 24%	58 to 56%	42 to 37%
	25 to 60%	56 to 29%	41% or below
<b>Women</b>	4 to 20%	70 to 59%	46 to 37%
	21 to 29%	59 to 52%	38 to 33%
	30 to 32%	52 to 50%	34 to 31%
	33 to 60%	50 to 29%	32% or below

Please be reminded that the %TBW estimated with the scale represents only a good approximation of your TBW. There exist clinical methods of estimating total body water that can be ordered by your physician.

#### 4. When should I use the scale's body fat and total body water functions?

For maximum accuracy and repeatability, it is recommended that the scale's body fat and total body water functions be used at approximately the same time of the day, e.g. before breakfast in the morning. It is also a good practice to avoid swings in hydration level of the body prior to the measurement. Establishing your own baseline value of %BF and %TBW and track their changes is better than merely comparing your %BF and %TBW value to the population's normal value.

#### 5. Why is the Athlete Mode necessary in a Body Fat Analyzer?

It has been found that body fat estimation using BIA could overestimate the percentage body fat of adult elite athletes. The physiological variation of athletes in bone density and level of hydration are two of the reasons said to account for the difference. The Athlete mode is selectable only for adults of 15 years of age or older.

#### 6. Definition of an Athlete

The general consensus among researchers is that a quantitative dimension could be used in defining an athlete. For example, an athlete could be defined as a person who consistently trains a minimum of three times per week for two hours each time, in order to improve specific skills required in the performance of their specific sport and/or activity.

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**9. What's Calorie Predictor?**

The Calorie Predictor function estimates the number of calories required based on your body composition and user entered personal data. This tool can be used as a guide when setting daily calorie goals during weight loss and exercise programs.

**10. What is Body Mass Index (BMI)?**

BMI is a ratio of a person's weight to height. BMI is commonly used to classify weight as "healthy" or "unhealthy".

**(BMI for adult 19-99 of age)**

<b>BMI</b>	<b>Classification</b>
30 and over	Obese
25 – 29.9	Overweight
18.5 – 24.9	Normal
Under 18.5	Underweight

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