

June 5, 2013

The Quantum IV is an advanced body composition assessment tool that represents the culmination of thirty years of continual improvement in both design and function. What has evolved is an instrument with unparalleled accuracy, reliability and ease of use.

The Quantum IV precisely measures resistance and reactance at 50 KHz. Many new features such as a bright green OLED display and an isolated USB port are standard including a versatile microcontroller. Even the ergonomic shape of the instrument's case has been engineered to produce the most appealing, accurate and easy to use product.

Quantum IV Features

- **Lithium Ion Batteries** The Quantum IV can be run continuously for more than 9 hours on a single charge. This is because of a 7.4 volt 1150 milliamp hour rechargeable lithium ion battery and an internal battery management system that prevents overcharging. Also included is a protection circuit that prevents over and under voltage conditions with an over current trip. Fully charged lithium ion batteries will maintain their charge to 80 percent in one year at room temperature.
- **Green OLED Display** - What is displayed
 1. Resistance: 0 to 1000 Ohms (resolution: ± 0.1 ohms)
 2. Reactance: 0 to 1000 Ohms (resolution: ± 0.1 ohms)
 3. Phase angle: 0 to 90 degrees (resolution: ± 0.1 degrees)
 4. Impedance: 0 to 1500 ohms (resolution: ± 0.1 ohms)

- **USB Communications** The USB port is used for downloading subject data in realtime or to access the latest upgrades for the internal microcontroller. As new features are developed for the Quantum IV, they can be transferred to the instrument via USB port and a PC connected to the Internet. In addition, the USB isolation barrier (5K volt) allows BC 3.0 Software to directly retrieve resistance and reactance safely while the subject is connected to the Quantum IV.
- **Reliability and Repeatability** An intrinsic function of all RJL BIA devices is the subject is free from direct contact with any active circuits or ground paths that may cause stray undefined readings from the instrument. Stray capacitance and noise is cancelled out or suppressed from the measurement. This unique isolation is one of many features that gives RJL Products and the Quantum IV its unsurpassed reliability, accuracy and repeatability.
- **Environment Temperature** The Quantum IV has design features that greatly reduce the effects of hot and cold environments on the test results. There is less than a one percent change in full scale resistance and reactance from -20 to 60 degrees Celsius. Therefore, the instrument can be used in both desert and cold weather studies without concern of degrading accuracy and reliability.
- **Battery Charger** Included with the Quantum IV is a 12 volt universal 120 - 240 VAC battery charger. An optional portable and foldable solar panel is available for charging the instrument.

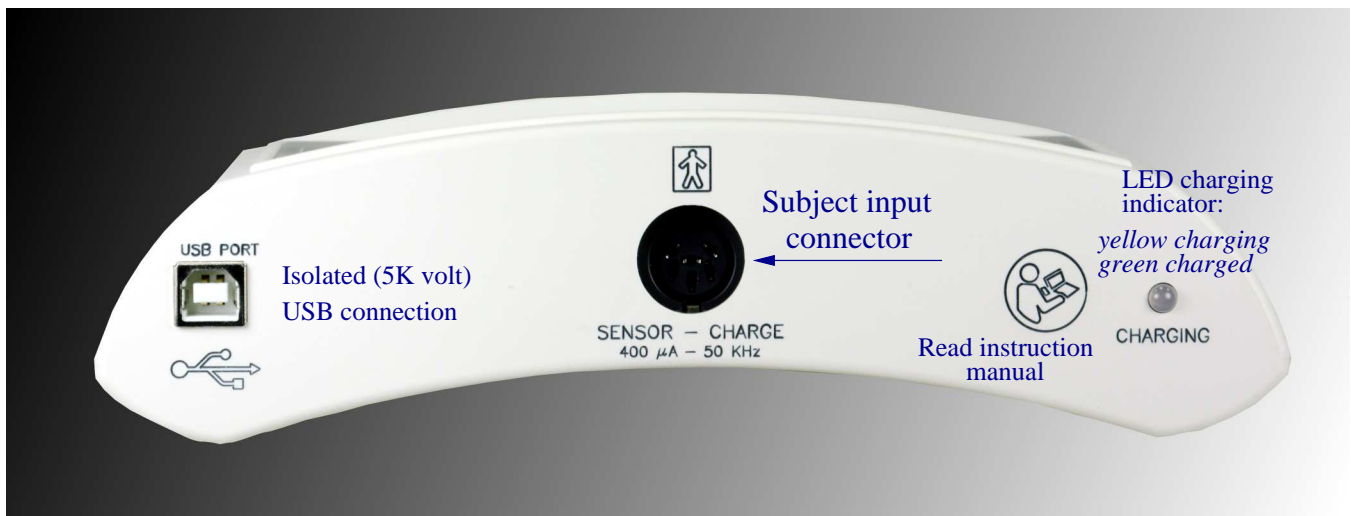
What is included



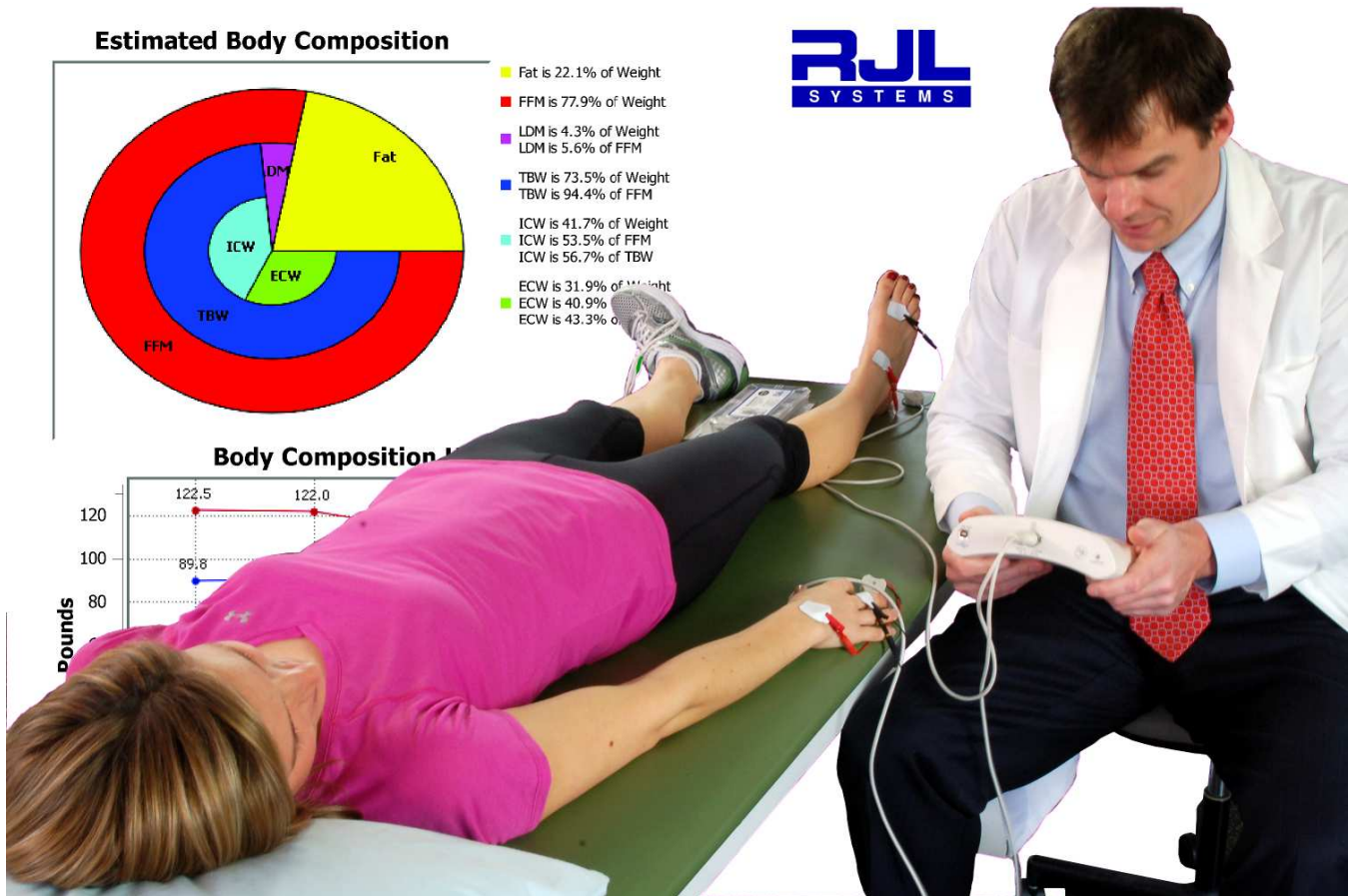
What's in the box with your Quantum IV

- Quantum IV Bioelectrical Impedance Analyzer (BIA) instrument
- Subject cables with protective pouch and USB cable
- Two (2) Stay Fresh Packs of electrodes (400 electrodes - 100 tests)
- Quantum IV User Manual on USB thumb drive
- Body Composition 3.0 Software and User Manual on USB thumb drive
- Laminated electrode placement card and test procedure quick reference
- 12 volt regulated battery charger
- 500 Ohm \pm 0.1 % test resistor in protective tube and instructions
- Sturdy black carrying case with water and dust protection of the instrument and accessories

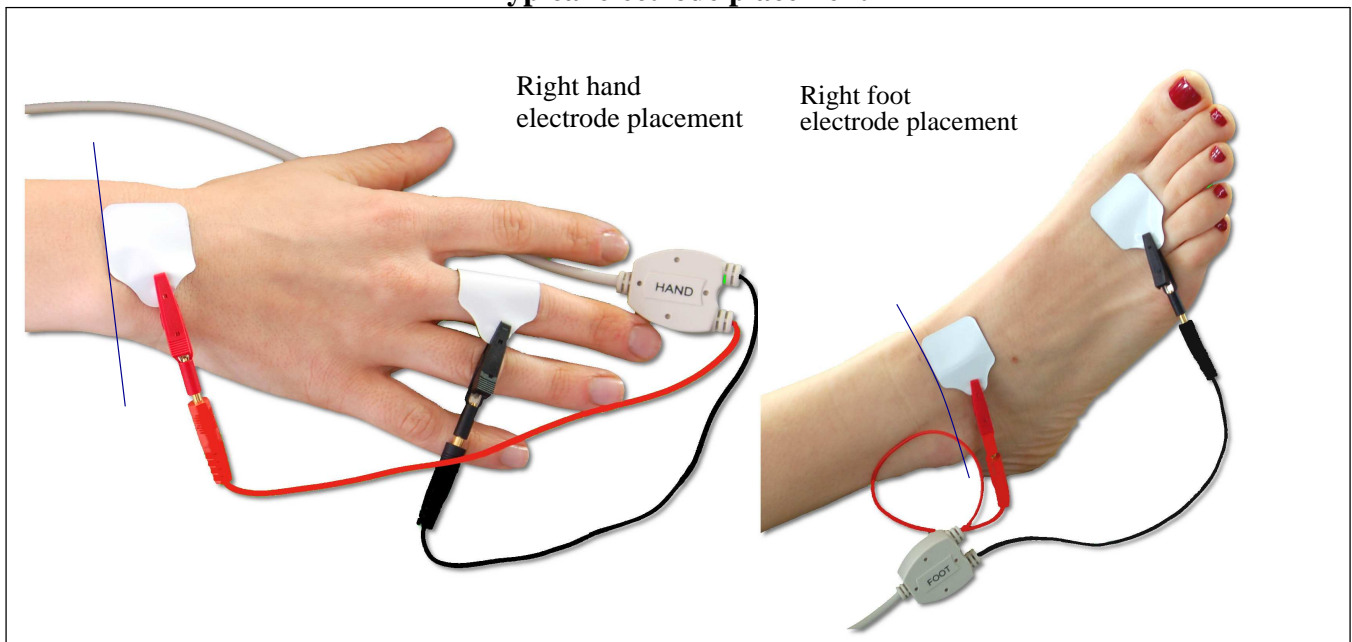
CNC engraved Quantum IV back panel



Quantum IV in use by a health care professional



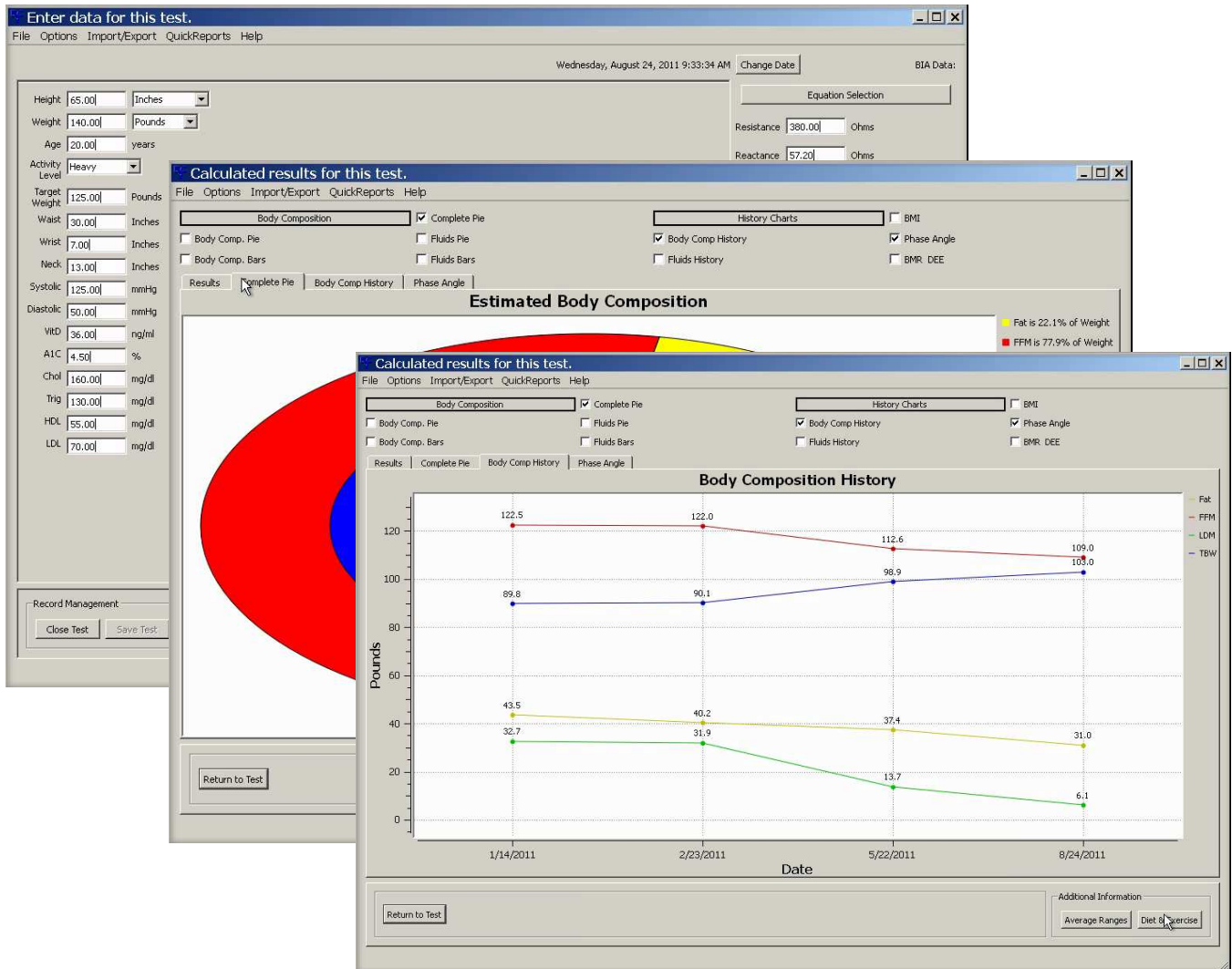
Typical electrode placement



Adhesive electrodes are the most repeatable and reliable method of measuring human biological resistance and reactance when the patient is supine.

BC 3.0 Body Composition Report

Tracking patient progress is a key feature of BC 3.0 software including a PDF Report output format. BC 3.0 software is available for Windows and Macs and is included with the Quantum IV on a USB thumb drive.



BC 3.0 historical tracking information (graphic and numeric)

- Actual resistance, reactance and calculated impedance and phase angle
- Estimated Body Fat (FAT), Fat Free Mass (FFM) and Lean Dry Mass (LDM)
- Estimated Total Body Water (TBW), Intra-Cellular Water (ICW) and Extra-Cellular Water (ECW)
- Estimated Basal Metabolic Rate (BMR) and Daily Energy Expenditure (DEE)
- Actual Body Mass Index (BMI)

BC 3.0 optional input fields for a more comprehensive health and weight management report

- Waist, wrist and neck circumferences
- Systolic and diastolic blood pressure
- Vitamin D and glycosylated hemoglobin (HbA1c)
- Total cholesterol, LDL, HDL and triglyceride



Natural Health and Healing
330 Harper Ave.
Wayne, Michigan 48236

1-800-555-0007

Name:	Samantha Adams	Test Date:	9:33 AM; August 24, 2011
Subject ID:		Report Printed on:	2:52 PM; February 28, 2012
Gender:	Female	Test Comment:	Updated lipid profile

Height	Weight	Age	Resistance	Reactance	Frame	Target Weight	Activity Level	Equation Set
65.0 in	140.0 lbs	20.0	380.0 Ω	57.2 Ω	Medium	125.0 lbs	Heavy	All Body Types
Waist Circumference			76.2					
Wrist Circumference			17.8					
Neck Circumference			33.0					
Systolic Blood Pressure			125.0					
Diastolic Blood Pressure			50.0					
Vitamin D			36.0					
Glycated Hemoglobin			4.5					
Cholesterol			160.0					
Triglycerides			130.0					
High-Density Lipoprotein			55.0					
Low-Density Lipoprotein			70.0					

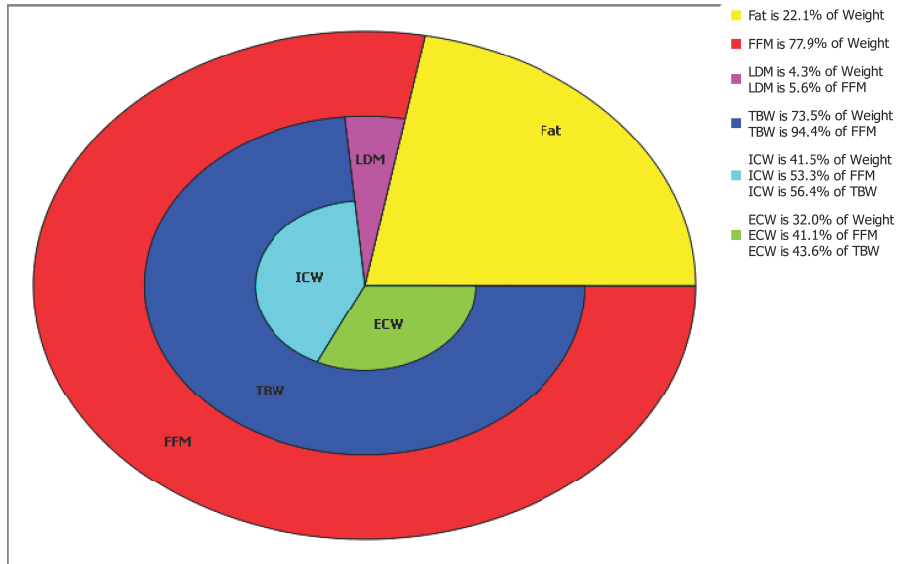
Complete Comment History:

9:33 AM; August 24, 2011	Updated lipid profile
9:39 AM; May 22, 2011	Making good progress
12:05 AM; February 23, 2011	Good increase in PA
9:32 AM; January 14, 2011	First visit. Very healthy

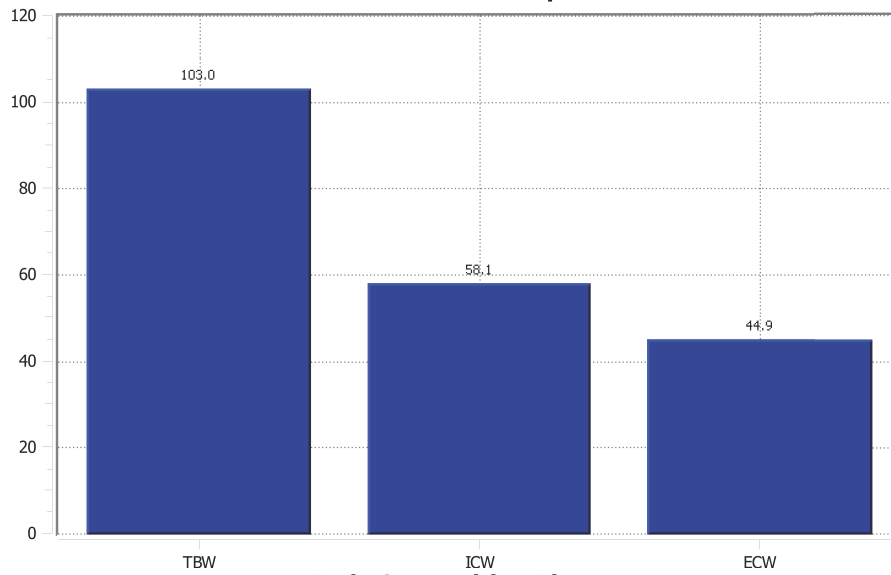
Current Test Data				
	Weight	Amount	% of Weight	
	140.0 lbs			
	Fat	31.0 lbs	22.1 %	
	Fat-Free Mass (FFM)	109.0 lbs	77.9 %	% of FFM
	Lean Dry Mass (LDM)	6.1 lbs	4.3 %	5.6 %
	Total Body Water (TBW)	103.0 lbs	73.5 %	94.4 %
	Intra-Cellular Water (ICW)	58.1 lbs	41.5 %	53.3 %
	Extra-Cellular Water (ECW)	44.9 lbs	32.0 %	41.1 %
				% of TBW
				56.4 %
				43.6 %
	BMI	23.3		Basal Metabolic Rate (BMR)
	Phase Angle	8.6		1565.8 kCal
				Daily Energy Expenditure (DEE)
				2975.1 kCal

Average Ranges				
	Weight	Amount	% of Weight	
	110.8 - 180.7 lbs			
	Fat	28.2 - 75.3 lbs	26.4 - 41.8 %	
	Fat-Free Mass (FFM)	80.0 - 107.9 lbs	58.2 - 73.6 %	% of FFM
	Lean Dry Mass (LDM)	20.4 - 27.8 lbs	14.7 - 19.1 %	24.2 - 27.1 %
	Total Body Water (TBW)	59.3 - 80.4 lbs	43.2 - 54.8 %	73.0 - 75.8 %
	Intra-Cellular Water (ICW)	33.3 - 42.2 lbs	23.0 - 30.4 %	38.9 - 41.9 %
	Extra-Cellular Water (ECW)	26.0 - 38.3 lbs	20.1 - 24.6 %	32.4 - 35.6 %
				% of TBW
				52.4 - 56.1 %
				43.9 - 47.6 %
	BMI	19.5 - 31.1		Basal Metabolic Rate (BMR)
	Phase Angle	6.9 - 8.6		1308.8 - 1621.9 kCal

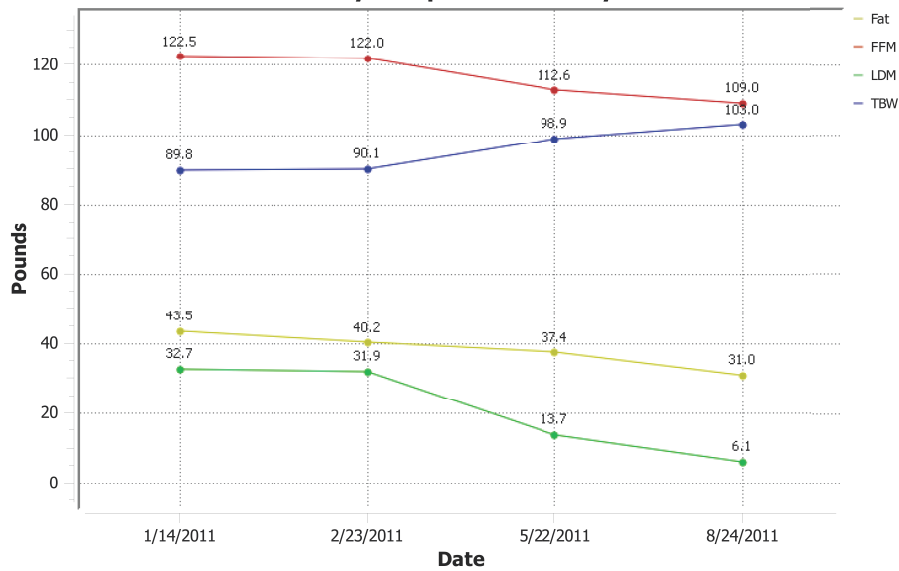
Estimated Body Composition

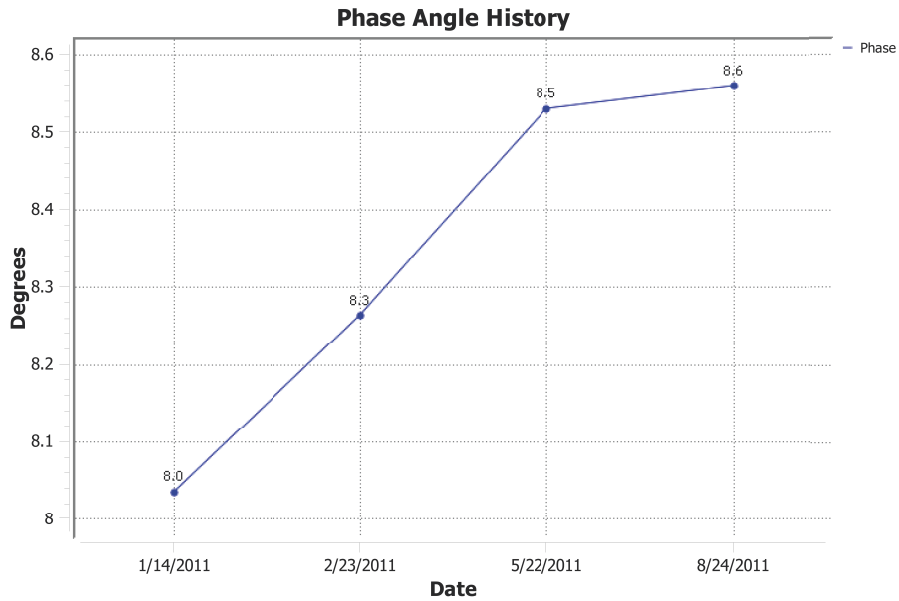


Estimated Fluids Compartments



Body Composition History





History

	1/14/2011 9:32 AM	2/23/2011 12:05 AM	5/22/2011 9:39 AM	8/24/2011 9:33 AM
Height	65.0	65.0	65.0	65.0
Weight	166.0	162.2	150.0	140.0
Age	20.0	20.0	20.0	20.0
Gender	Female	Female	Female	Female
R	425.0	420.0	400.0	380.0
Xc	60.0	61.0	60.0	57.2
Frame	Medium	Medium	Medium	Medium
Activity Level	Heavy	Heavy	Heavy	Heavy
equation_set	BIA-103	BIA-103	All Body Types	All Body Types
Target Weight	125.0	125.0	125.0	125.0
BMI	27.6	27.0	25.0	23.3
PA	8.0	8.3	8.5	8.6
BMR	1692.1	1687.5	1599.6	1565.8
DEE	3215.0	3206.2	3039.2	2975.1
Fat	43.5	40.2	37.4	31.0
Fat % of Weight	26.2 %	24.8 %	24.9 %	22.1 %
FFM	122.5	122.0	112.6	109.0
FFM % of Weight	73.8 %	75.2 %	75.1 %	77.9 %
LDM	32.7	31.9	13.7	6.1
LDM % of Weight	19.7 %	19.7 %	9.1 %	4.3 %
LDM % of FFM	26.7 %	26.2 %	12.2 %	5.6 %
TBW	89.8	90.1	98.9	103.0
TBW % of Weight	54.1 %	55.5 %	66.0 %	73.5 %
TBW % of FFM	73.3 %	73.8 %	87.8 %	94.4 %
ICW	46.5	46.8	55.1	58.1
ICW % of TBW	51.7 %	51.9 %	55.7 %	56.4 %
ECW	43.3	43.3	43.8	44.9
ECW % of TBW	48.3 %	48.1 %	44.3 %	43.6 %
Neck	35.6	--	--	33.0
Waist	81.3	--	--	76.2
Wrist	17.8	--	--	17.8
Systolic	125.0	--	--	125.0
Diastolic	60.0	--	--	50.0
Vit-D	35.0	--	--	36.0
A1C	4.8	--	--	4.5
Chol	170.0	--	--	160.0
HDL	50.0	--	--	55.0
LDL	80.0	--	--	70.0
Trig	140.0	--	--	130.0

Defining the the results of BC 3.0

- **Fat:** Fat is the energy storage of the body. Everyone needs fat in their bodies, but it is important not to have too much.
- **Fat Free Mass (FFM):** This value is, literally, what would be left after all the fat was removed from the body. FFM is also referred to as Lean Body Mass (LBM).
- **Lean Dry Mass (LDM):** Lean Dry Mass is what would remain if 100% of the water was extracted from FFM.
- **Total Body Water (TBW):** The amount of water in the body. Since fat is approximately 14% water, TBW is approximately 73 % of FFM.
- **Intracellular Water (ICW):** This is the portion of Total Body Water that is located within the cells.
- **Extracellular Water (ECW):** This is the portion of Total Body Water that is located outside of the cells. Some examples of where ECW is found include blood plasma, spinal fluid and interstitial fluid.
- **Target Weight:** This value can be manually entered. Otherwise, it is calculated using a set of standardized formulas.
- **Basal Metabolic Rate (BMR):** The number of calories that a person will use per day lying still and breathing.
- **Daily Energy Expenditure (DEE):** People generally don't lay in bed all day, doing nothing, but breathing. To estimate how many calories a person actually burns in a day, the program will adjust the BMR based on what you entered as the person's daily activity level.
- **Phase Angle (PA):** Phase Angle is utilized by practitioners and researchers as a general health indicator.