

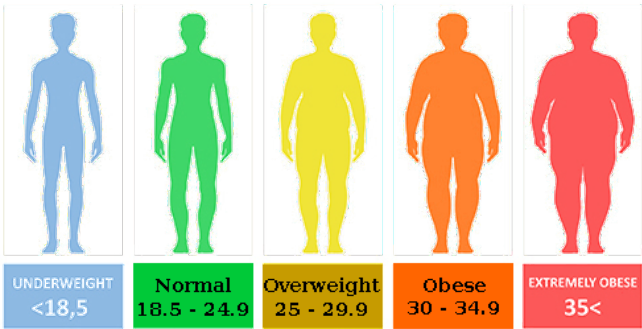
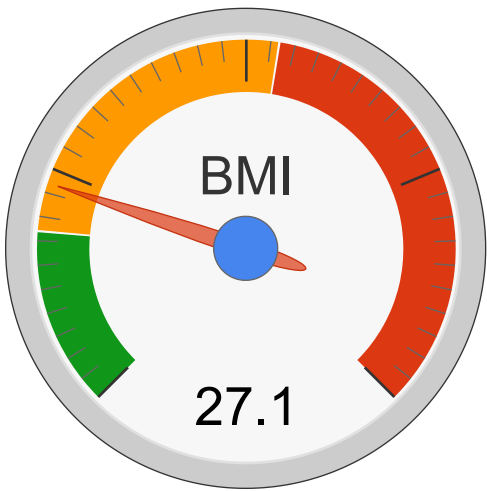
RJL Systems Body Composition Analysis
Time: 09:01 Measurement Units: English

Date	First	Last	Equation	Sex	Age	Height	Weight	Activity	Resistance	Reactance	Phase Angle
11/4/2024	undefined	undefined	RJL	male	39	72	200	no entry	500	60	6.84

RJL Systems Whole Body Analysis

	Weight Pounds			
Weight	200	% of Weight		
Fat	52.4	26.2		
Fat Free Mass (FFM)	147.5	73.8	% of FFM	
Skeletal Muscle Mass (SMM)	72.2	36.1	49.0	
Lean Dry Mass(LDM)	43.4	21.7	29.4	
Total Body Water (TBW)	104.1	52.1	70.6	% of TBW
Extra-Cellular Water (ECW)	44.4	22.2	30.1	42.6
Intra-Cellular Water (ICW)	59.8	29.9	40.5	57.4
Bone Mineral Content (BMC)	7.7	3.8	5.2	
Lean Soft Tissue (LST)	139.8	69.9	94.8	
Phase Angle Measured	6.84	Normalized	Work in Prog	

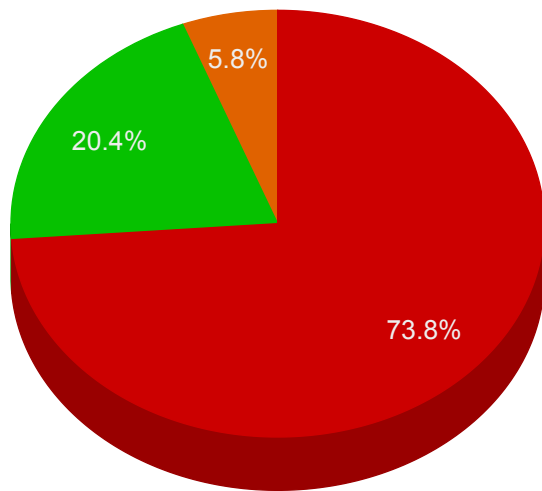
Body Mass Index



Your ideal weight is 170 based on a BMI of 23
A more reasonable target is 180 at this time (10 % weight loss)

Body Fat Analysis

Fat Management % Weight



● FFM ● ACSM FAT ● OVER FAT

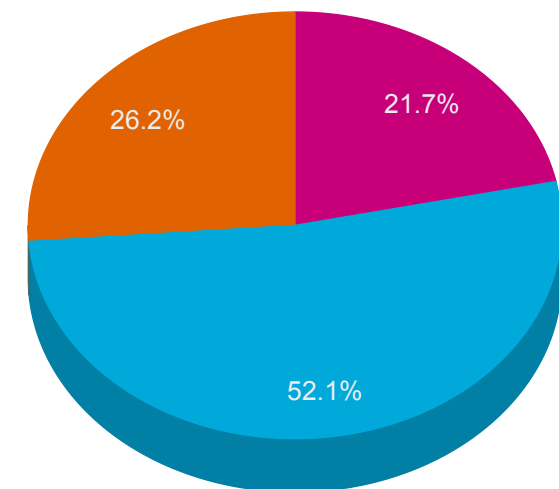
American College of Sports Medicine

ACSM Body Composition (% Body Fat) for Men

Male	AGE				
Fitness Category	20-29	30-39	40-49	50-59	60+
Essential Fat	2 - 5	2 - 5	2 - 5	2 - 5	2 - 5
Excellent	7.1 - 9.3	11.3 - 13.8	13.6 - 16.2	15.3 - 17.8	15.3 - 18.3
Good	9.4 - 14	13.9 - 17.4	16.3 - 19.5	17.9 - 21.2	18.4 - 21.9
Average	14.1 - 17.5	17.5 - 20.4	19.6 - 22.4	21.3 - 24	22 - 25
Below Average	17.4 - 22.5	20.5 - 24.1	22.5 - 26	24.1 - 27.4	25 - 28.4
Poor	>22.4	>24.2	>26.1	>27.5	>28.5

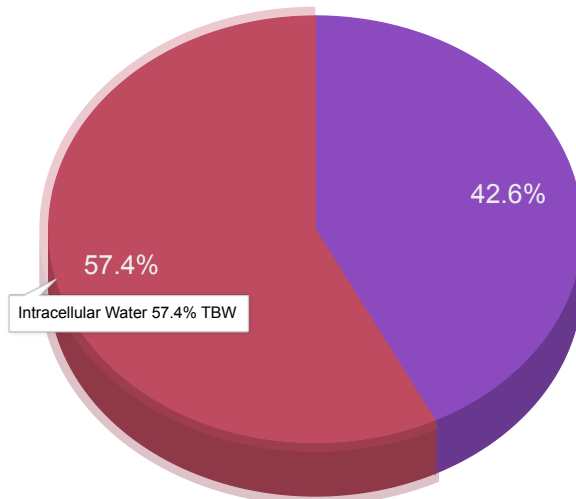
Body Water (fluids) Analysis

Hydration Management TBW % Weight



● LDM % Wt ● TBW % Wt ● FAT % Wt

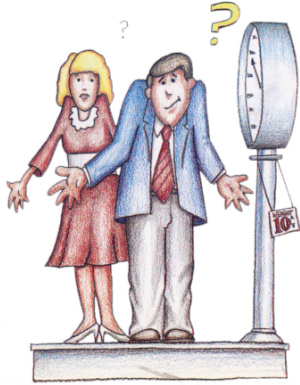
Body Water Compartments % TBW



● ECW % TBW ● ICW % TBW

Body Composition Comparison for the Average American (NHANES)

Scale weight is not the answer [click for more](#)

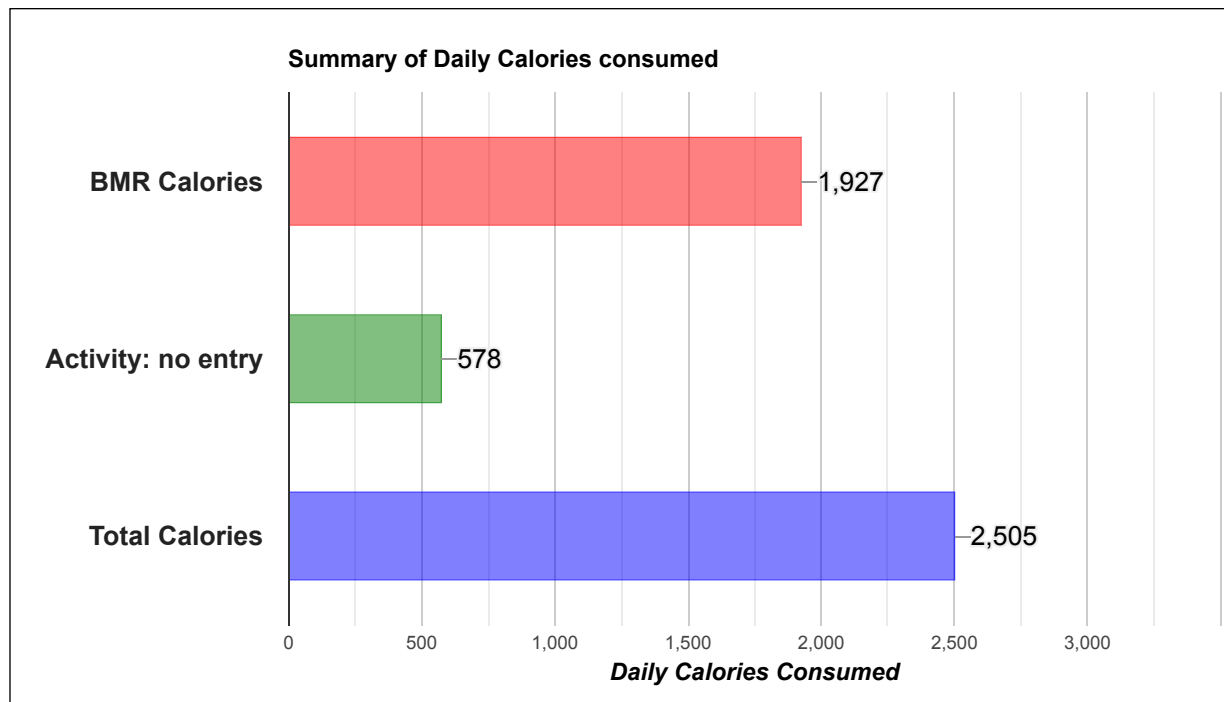


BIA is objective body composition management

Total Body Weight			
Fat	Fat Free Mass		
	Lean Dry Mass	Total Body Water	
	Bone Mineral Content	Intra-cellular Water	Extra-cellular Water
		Lean Soft Tissue	
		Skeletal Muscle Mass	Non-SMM LST

Body Composition Target Analysis based on age and gender

	Weight Pounds		
Weight	200	Target Average [1,2]	Percent of Actual
Fat (FAT)	52.4 lb	33.4 - 48.2 lb	26.2% Weight
Fat Free Mass (FFM)	147.5 lb	151.8 - 166.6 lb	73.8% Weight
Skeletal Muscle Mass (SMM)	72.2 lb	63.1 - 88.2 lb	36.1% Weight
Total Body Water (TBW)	47.2 L	37.9 - 52.9 L	52.1% Weight
Extra-Cellular Water (ECW)	20.1 L	15.0 - 22.4 L	42.6% TBW
Intra-Cellular Water (ICW)	27.1 L	22.9 - 30.5 L	57.4% TBW
Phase Angle Measured	6.84	7.6 - 9.4 Deg	PA age range: 39



Interactive Weight Management Tool

Weight Loss based on Calorie reduction from food and increased daily activity

Move green dot to desired pounds / week weight loss from food reduction

Move red dot to additional Daily Energy Expenditure (DEE) calories

**Reduced
food
calories**

**Additional
exercise
calories**

**Total reduction:
food and exercise
calories**

**Weight loss:
Pounds per
week**

Reset all values

WebMD® has a very good **fitness and exercise** calculator see: [Exercise Calculator](#)
use search to fine the excercise/s for you

RJL Systems body composition software definitions

The terms below, as well as the graphical representation at the right, will help describe the general breakdown of what RJL Systems body composition software assess.

Height - in inches (in) or centimeters (cm)

Weight - in pounds (lbs) or kilograms (kg).

Resistance - the opposition to the flow of an electrical current. Higher TBW and LDM yield a lower Resistance, and higher Fat and dehydration yield a higher Resistance.

Reactance - measures the body's opposition to changes in the flow of an electrical current. Reactance is related to the capacitance of the cell membranes, and reflects integrity, function, and composition.

Phase Angle (PA) - PA reflects the relative contributions of fluid (resistance), and cellular membranes (capacitive reactive). It is calculated as the arc-tangent of Reactance over resistance, measured in degrees. Typical Phase Angles (NHANES human data) range between 4-9.

Fat - provides insulation, warmth, and energy storage, and is necessary for the absorption of many vitamins.

Fat Free Mass (FFM) - is also called Lean Body Mass, and is everything in the body, except Fat. Lean Soft Tissue

Lean Dry Mass (LDM) - is what is left after subtracting all of the water from Fat Free Mass.

Total Body Water (TBW) - is all of the water throughout the body, both inside and outside of the cells.

Intra-Cellular Water (ICW) - represents the amount of water inside cells.

Extra-Cellular Water (ECW) - represents the amount of water outside of the cells.

Bone Mineral Content (BMC) - Bones are dynamic organs that include cells, blood vessels, collagen and mineral deposits. BMC is only an estimate of the minerals in the bones and does not represent the total weight of the skeleton. It is part of Fat-Free Mass.

Total Body Weight				
Fat	Fat Free Mass			
	Lean Dry Mass		Total Body Water	
	Bone Mineral Content	Non-BMC LDM	Intra-cellular Water	Extra-cellular Water
		Lean Soft Tissue		
		Skeletal Muscle Mass	Non-SMM LST	

Lean Soft Tissue (LST) - In the same way that LDM is the result of removing all water from Fat-Free Mass. Lean Soft Tissue is the result of subtracting Bone Mineral Content from Fat-Free mass. This includes organs, muscles, connective and supportive tissues, as well as all of Total Body Water.

Skeletal Muscle Mass (SMM) - SMM are the muscles responsible for posture and movement.

Basal Metabolic Rate (BMR) - The caloric energy required to sustain life in a sedentary state for 24 hours.

Daily Energy Expenditure (DEE) - DEE adjusts the BMR value based on the selected activity level. The caloric energy required to sustain life, plus daily activities.

Body Mass Index (BMI) - BMI is derived by dividing total weight (kg) by height (meters) squared. BMI is a general measure typically used to determine if someone is overweight, but knowing actual body composition is much more accurate.

Fat Mass Index (FMI) - FMI relates fat mass to height in the same way that BMI relates total weight to height. Because it takes into account only the fat mass, it is a superior indicator of obesity compared to BMI.

Fat Free Mass Index (FFMI) - FFMI relates fat-free mass to height in the same way that FMI does to fat. $Fat + FFM = Weight$, $FMI + FFMI = BMI$.

References

- [1] Taken from ACSM'S Health-Related Physical Fitness Assessment Manual, 2ndEd.
- [2] The United States Center for Disease Control (CDC) has an ongoing series of studies called the National Health and Nutrition Examination Survey, or NHANES. The NHANES_III data set contains records for 33,994 individuals, although not all participants took part in every section of the survey. Eliminating all records that do not have BIA data reduces the data pool to 17,660 records of men and women that were used to create the average and variance (standard deviation) of the ranges in this chart, except for body fat where the standards of the American College of Sports Medicine are used for a more ideal fat distribution.

RJL Equation Set

Moore ML, Benavides ML, Dellinger JR, Adamson BT, Tinsley GM. *Segmental body composition evaluation by bioelectrical impedance analysis and dual-energy X-ray absorptiometry: Quantifying agreement between methods*. Clin Nutr. 2020 Sep;39(9):2802-2810. doi: 10.1016/j.clnu.2019.12.009. Epub 2019 Dec 13. PMID: 31874783.

NHANES III Equation Set

Chumlea WC, Guo SS, Kuczmarski RJ, Flegal KM, Johnson CL, Heymsfield SB, Lukaski HC, Friedl K, Hubbard VS. >i>Body composition estimates from NHANES III bioelectrical impedance data. Int J Obes Relat Metab Disord. 2002 Dec;26(12):1596-609. doi: 10.1038/sj.ijo.0802167. PMID: 12461676.

Pediatric Equation Set

Schaefer F, Georgi M, Zieger A, Schärer K. *Usefulness of bioelectric impedance and skinfold measurements in predicting fat-free mass derived from total body potassium in children*. Pediatr Res. 1994 May;35(5):617-24. PMID: 8065848.

Total Body Water (TBW)

Chumlea WC, Guo SS, Kuczmarski RJ, Flegal KM, Johnson CL, *Body composition estimates from NHANES III bioelectric Int J Obes Relat Metab Disord. 2002 Dec;26(12):1596-609.*

Total Body Water (TBW) Pediatric

Kushner RF, Schoeller DA, Fjeld CR, Danford L. *Is the impedance index (ht²/R) significant in predicting total body water?* Am J Clin Nutr. 1992 Nov;56(5):835-9. doi: 10.1093/ajcn/56.5.835. PMID: 1415001.

Extracellular Water (ECW)

Accuracy of Bioelectrical Impedance Analysis in Estimation of Extracellular Sp Healthy Subjects and in Fluid Retention States Giuseppe Sergi, et. al. Annals of Nutrition and Metabolism (1994) 38, 158-165

Disclaimer

The statements made within this body composition application have not been evaluated by the Food and Drug Administration. These statements and the products of RJL Systems are not intended to diagnose, treat, cure or prevent any disease.

RJL Systems

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