DEXA Full Body Composition

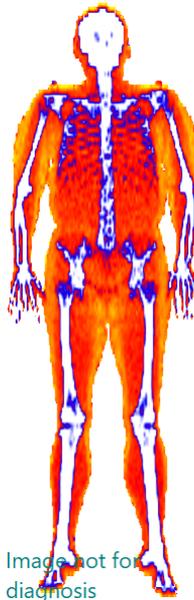|			
Name:		**Birth Date:** 15/Oct/1972	**Exam Date:** 12/Feb/2025
Gender: Female		**Height:** 170.2 cm	
		Weight: 64.9 kg	

BODY COMPOSITION SUMMARY

Bone	Tissue Gradient	Tissue

Image not for diagnosis

Image not for diagnosis

Image not for diagnosis

Color Coding

Bone — Lean — Fat

Measured Date:	12/Feb/2025
Total Mass:	**147.6 lbs**
Fat Mass:	**33.8 lbs**
Lean Mass:	**108.8 lbs**
Visceral Adipose Tissue:	**0.77 lbs**
%Fat / Percentile:	**23.7 / 7**
Android / Gynoid Ratio:	**0.68**
BMD / Age Matched Percentile:	**1.033 / 49**

Region	Tissue (% fat)	Total Mass (lbs)	Fat (lbs)	Lean (lbs)	BMC (lbs)
Arms	31.1	15.6	4.7	10.3	0.6
Legs	21.3	45.3	9.3	34.3	1.8
Trunk	23.9	77.0	18.0	57.5	1.5
Android	20.1	10.4	2.1	8.2	0.1
Gynoid	29.7	22.6	6.6	15.5	0.5
Total	23.7	147.6	33.8	108.8	5.0

FULL BODY COMPOSITION SUMMARY

Arms Composition	Both Arms	Right Arm	Left Arm	Total Arm Difference
Lean Mass (lb)	10.3 lbs	5.2 lbs	5.1 lbs	0.0 lbs
Fat Mass (lb)	4.7 lbs	2.5 lbs	2.2 lbs	0.2 lbs
Bone Mineral Content (lb)	0.6 lbs	0.3 lbs	0.3 lbs	0.0 lbs
Total Mass (lb)	15.6 lbs	8.0 lbs	7.6 lbs	0.3 lbs

Leg Composition	Both Legs	Right Leg	Left Leg	Total Leg Difference
Lean Mass (lb)	34.3 lbs	17.0 lbs	17.2 lbs	-0.2 lbs
Fat Mass (lb)	9.3 lbs	4.6 lbs	4.7 lbs	0.0 lbs
Bone Mineral Content (lb)	1.8 lbs	0.9 lbs	0.9 lbs	0.0 lbs
Total Mass (lb)	45.3 lbs	22.6 lbs	22.8 lbs	-0.2 lbs

Trunk Composition	Both Trunk	Right Trunk	Left Trunk	Total Trunk Difference
Lean Mass (lb)	57.5 lbs	27.8 lbs	29.7 lbs	-2.0 lbs
Fat Mass (lb)	18.0 lbs	9.1 lbs	8.9 lbs	0.2 lbs
Bone Mineral Content (lb)	1.5 lbs	0.7 lbs	0.7 lbs	0.0 lbs
Total Mass (lb)	77.0 lbs	37.6 lbs	39.3 lbs	-1.7 lbs

| Total Composition	Total Body	Right Total	Left Total	Total Body Difference
Lean Mass (lb)	108.8 lbs	53.9 lbs	54.8 lbs	-0.9 lbs
Fat Mass (lb)	33.8 lbs	17.2 lbs	16.5 lbs	0.7 lbs
Bone Mineral Content (lb)	5.0 lbs	2.6 lbs	2.4 lbs	0.3 lbs
Total Mass (lb)	147.6 lbs	73.8 lbs	73.8 lbs	-1.7 lbs

System ID: DF+350424

LEAN

Lean body mass includes all parts of the body (organs, muscle and fluids) but excluding body fat.

The higher the lean mass percentage, the more muscular the body.

Total Mass	147.6 lbs
Lean Mass	108.8 lbs
Tissue %Lean	73.7 %

FAT
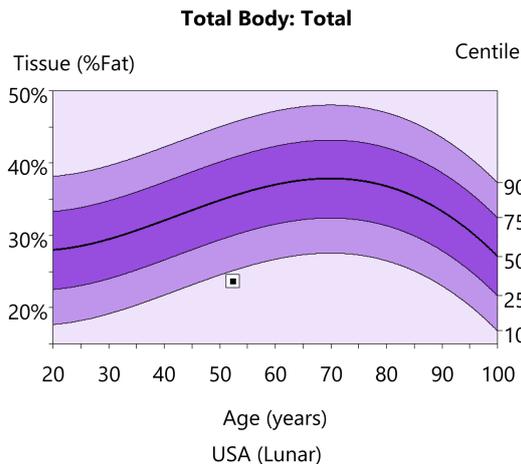
Fat Mass	33.8 lbs
Tissue % Fat	23.7 %

Total Body: Total

Tissue (%Fat)   Centile

Age (years)

USA (Lunar)

Composition Reference Centile Graph shows your Total Body Tissue %Fat result compared to a reference population. This comparison is very similar to how babies are measured and compared to reference data for height and weight. The **bold** black line on the graph represents the 50th percentile (median) result for the reference population. The square on the graph represents your result. There are currently no standard definitions of normal or obesity based on Tissue %Fat results, but you can see how you compare to this reference population.
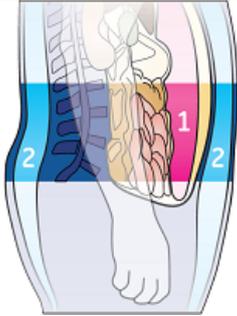
TOTAL BODY FAT PERCENTAGE

A more accurate metric of weight is that of body fat percentage-the ratio of the total weight of a person's fat to his or her body weight. Often a skinfold estimation of body fat is done but the scan you just completed is a much more accurate measure.

Tissue (%Fat)	23.7 %
Region (%Fat)	22.9 %

VISCERAL ADIPOSE TISSUE (VAT)

Adipose Tissue
1 Visceral
2 Subcutaneous

CoreScan estimates the VAT (Visceral Adipose Tissue) content within the android region, VAT is a specific type of fat that is associated with several types of metabolic diseases such as obesity, metabolic syndrome, and type 2 diabetes.

CoreScan results have been validated for adults between ages 18-90, and with a BMI in the range of 18.5-40.

Fat Mass (g)	Fat Volume (in³)
0.77	22.72

Fat Mass to Fat Volume Conversion
0.94 g of fat is equal to 1 in³

ANDROID/GYNOID RATIO

While Total Body %Fat will tell you more about your overall fitness than your weight alone, regional fat distribution tells you **where** the fat is located.

Android (waist) fat is the fat stored in the midsection of the body, primarily in the abdomen.
It is more common among men, and creates the "apple" shape. Gynoid (hip) fat is stored primarily in the hips and thighs and is more common among women. This creates the "pear" shape.

Gynoid fat is considered a healthier fat because the fat is not stored in the belly and around organs. Determining the ratio of android to gynoid fat (the A/G ratio) is critical as it is directly correlated to the prevalence of visceral fat. This is a result of organs insulating themselves from toxins by encapsulating the organs in fat. This survival strategy may impede organ function and increase the risk for disease. Ideally, your android fat will always be lower than your gynoid fat and your A/G ratio should be below 1.0.

Region	Tissue %Fat
Android:	20.1 %
Gynoid:	29.7 %
A/G Ratio:	0.68
	Males <1.0 A/G
	Females <0.8 A/G

COMPOSITION ASSESSMENT

Understanding your body composition is valuable because a person's level of body fat is directly correlated with healthy outcomes. Obesity-related diseases include heart disease, type 2 diabetes, hypertension, and stroke. Working toward weight loss if you are overweight or obese can have a profound positive effect on your health.

Weight loss alone won't necessarily lead to huge decreases in your body fat percentage since weight loss without exercise will lead to decreases in lean mass as well. To decrease your body fat percentage you have to sustain a healthy diet, maintain cardiovascular exercise regimens, and, include resistance training to build up your lean mass, otherwise approximately 25% of every pound you lose will come from lean, calorie-burning muscle.

An ideal body fat percentage is different for men compared to women. Women require a higher body fat percentage in order to maintain menstruation and the ability to have children.

General Body-fat Percentage Categories

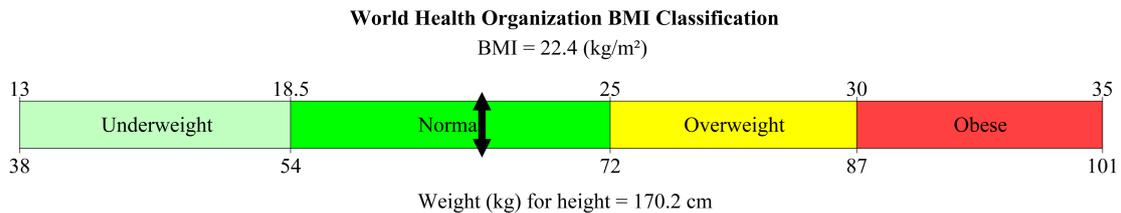| Classification	Women(%fat)	Men(%fat)
Essential Fat	10 - 13 %	2 - 5 %
Athletes	14 - 20 %	6 - 13 %
Fitness	21 - 24 %	14 - 17 %
Average	25 - 31 %	18 - 24 %
Obese	≥ 32 %	≥ 25 %

Your total body has

22.9

percent body fat.

The American Council on Exercise advises that in general, 10% to 25% body fat is considered healthy in adult male, and 18% to 32% body fat is considered healthy in adult female.

BODY MASS INDEX

A frequently used index to assess a person's body composition (or amount of body fat), is called the Body Mass Index (BMI.) This value indicates whether you are underweight, normal weight, overweight or obese. There are no definitive standard definitions of normal or obese, but you can see how you compare to the World Health Organization Classification.

World Health Organization BMI Classification
BMI = 22.4 (kg/m²)

13	18.5	25	30	35
Underweight	Normal	Overweight	Obese	
38	54	72	87	101

Weight (kg) for height = 170.2 cm

BMI Classification: Normal

For most people, BMI is a quick and easy way to assess body composition, which is why it is commonly used. However, since body weight (and not percent body fat) is used in determining BMI, there may be problems when using BMI to assess people who are heavily muscled (such as body builders) or who have an athletic body type. Because muscle weighs more than fat, those who have well-developed muscles typically appear overweight or obese according to BMI reference chart. If you are a person with an athletic or muscular build, do not use BMI as the only method to assess your body composition.

BONE

Total Body: Total (BMD)

BMD (g/cm²) ... YA T-score

Age (years)
USA (Combined NHANES/Lunar)
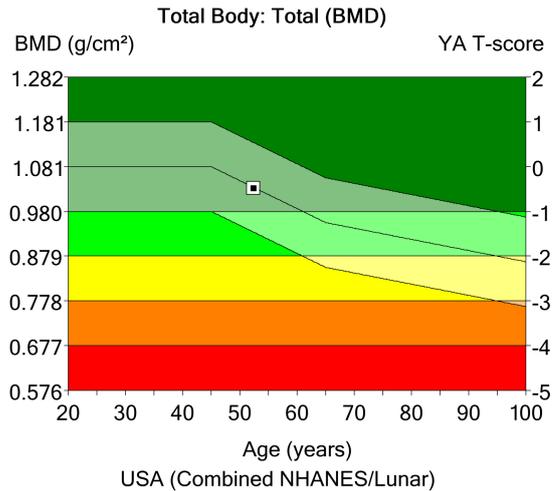
Age	BMD	T-score	Z-score
52.3	1.033 g/cm²	-0.5	0.0

A bone densitometry test helps your physician to diagnose osteoporosis. The test comapres your Bone Mineral Density (BMD) to that of a "young adult" at peak bone strength, displayed as your T-score. It also compares your results to people of your same age, called "age-matched" dispalyed as your Z-score. This information, along with other factors, helps physicians assess your risk of osteoporosis fracture. The difference between your result and that of a "young adult" is given as a T-score. A panel of experts at the World Health Organization (WHO) has developed categories that define the amount of bone loss:

Normal: T-score that is above -1
Osteopenic: T-score between -1 and -2.5 (low bone density)
Osteoporosis: T-score below -2.5

RELATIVE SKELETAL MUSCLE INDEX (INDEX)

RSMI represents the amount of muscle in your arms and legs in relation to your height. This value, determined through a DEXA Scan, is a key indicator of muscle health and helps assess the risk of sacropenia.

Sarcopenia is a condition linked to aging that leads to muslce loss.

Reduced muscle can affect strength, balance and mobility, making daily activities more challenging. Tracking your RSMI allows for early intervention to maintain muscle function and overall well-being.

Your RSMI	**6.98 kg/m²**

Sarcopenia Classifciation	RSMI Result
Male	< 7.26
Females	< 5.45

RESTING METABOLIC RATE

Resting Metabolic Rate (RMR) is synonymous with Resting Energy Expenditure (REE) and is an estimate of how many calories you would burn if you were to do nothing but rest. It represents the minimum amount of energy needed to maintain body temperature, heartbeat and respiratory rate.

Your RMR: **1,430 cal/day**

RMR (Resting Metabolic Rate) based on Mifflin-St Jeor equation.
RMR = 19.7 x FFM(fat free mass) + 413
Mifflin MD, St Jeor ST, Hill LA, Scott BJ, Daugherty SA, Koh YO. A new predictive equation for resting energy expenditure in healthy individuals., Am J Clin Nutr., 1990 Feb;51(2):241-7. PMID: 2305711

DAILY CALORIC NEED* CALCULATOR

Definition of Activity Levels

Little to no excercise	Daily calories needed= BMR x 1.2
Light excercise (1-3 days per week)	Daily calories needed= BMR x 1.375
Moderate excercise (3-5 days per week)	Daily calories needed= BMR x 1.55
Heavy excercise (6-7 days per week)	Daily calories needed= BMR x 1.725
Very heavy excercise (twice per day, extra heavy workouts)	Daily calories needed= BMR x 1.9

DEFINITIONS

DEXA - DUAL ENERGY X-RAY ABSORPTIOMETRY: The *method* used during a scan is called Dual Energy X-ray Absorptiometry, since two specific energies are required to measure bone and soft tissue.

DXA - DUAL X-RAY ABSORPTIOMETER: The *system* used during a scan is called a Dual X-ray Absorptiometer, and is commonly called a bone densitometer.

THREE COMPARTMENT MODEL: A DXA scan will differentiate the body into three distinct types of tissue: 1) lean mass, 2) fat mass and 3) bone mineral content. Other methods of measuring body composition such as skin-fold measurements, bioelectric impedance analysis (BIA) and hydrostatic weighing can only determine body composition in a two compartment model of simply fat mass and fat free mass.

 1- LEAN MASS: This is the sum of all the muscle and soft organ tissue (internal organs, ligaments, connective tissue, etc.)

 2- FAT MASS: This is the sum of all the fatty tissue and includes the fat found within the organs of the body as well as the subcutaneous fat found under the skin.

 3- BMC: This stands for Bone Mineral Content and is the measurement of the dry bone mass.

FFM - FAT FREE MASS: The Fat Free Mass result is calculated by summing the *lean mass* and the *bone mineral content*.

TISSUE MASS: The tissue result is calculated by summing the *lean mass* and the *fat mass*.

TOTAL MASS: The total mass is calculated by summing all three measurements of the *lean mass*, *fat mass* and *bone mineral content*.

TISSUE PERCENT FAT: This value is used to determine how much fat is in the tissue. This is calculated by dividing the fat mass by the tissue mass (Tissue % fat = Fat Mass / Tissue Mass x 100).

REGION PERCENT FAT: This value is used to determine how much fat is in the in the whole region. This is calculated by divinding the fat mass by the Fat Free Mass [Region % fat = Fat Mass / (Lean Mass + BMC) x 100].

REGIONS: The DXA scanner will calculate the lean, fat and bone mineral content of the total body as well as in the various sub-regions of interest for the l*eft/right arm*, *left/right leg*, *left/right trunk*, *android*, *gynoid* and *head*.

TRUNK: The trunk (or torso) is an anatomical term for the central part of the body from which extend the neck, arms and legs. The trunk includes the thorax and the abdomen.

ANDROID: The android region is located immediately above the pelvis and extends upwards to include 20% of the distance from the top of the pelvis to the base of the chin. Android fat is often associated with apple-shaped body types.

GYNOID: The gynoid region is placed with its upper boundary positioned below the top of the pelvis at a distance equal to 1.5 times the height of the android region. The total height of the gynoid is two times the height of the android region. Gynoid (hip) fat is often associated with pear-shaped body types.

VAT - VISECRAL ADIPOSE TISSUE: The DXA software estimates the Visceral Adipose Tissue (VAT) content within the android region. The content that is estimated is the VAT Mass and VAT Volume. Some of the

diseases/conditions for which VAT estimation can be useful include hypertension, impaired fasting glucose, impaired glucose tolerance, diabetes mellitus, dyslipidemia and metabolic syndrome.

MIRROR IMAGE: The MirrorImage function can be used to estimate the total body composition and bone mineral content when regions of the body are outside of the scan window by using scanned data from the corresponding region(s) on the opposite half of the body. Estimated results will be displayed with "(e)" to indicate an estimate was used.

ARTIFACT: Artifacts seen in DXA x-ray images may be due to patient factors (such as movement during acquisition) or the presence of external or internal non-anatomical objects (such as metal).

RMR - RESTING METABOLIC RATE: Resting Metabolic Rate (RMR) is synonymous with Resting Energy Expenditure (REE) and is an estimate of how many calories you would burn if you were to do nothing but rest. It represents the minimum amount of energy needed to maintain body temperature, heartbeat, and respiratory rate.

RSMI: This stands for Relative Skeletal Mass Index. RSMI represents the relative amount of muscle in the arms and legs compared against the patients height and is calculated using the Baumgartner equation: RSMI = (lean mass of arms[kg] + lean mass of legs[kg]) / (height[m2]).   RSMI on DXA can be useful to help screen for Sarcopenia.

SARCOPENIA: Sarcopenia is a disease associated with the aging process. Loss of muscle mass and strength affects balance, gait, and the ability to perform daily living tasks. Sarcopenia most commonly is seen in inactive people but can also affect individuals who remain physically active throughout their lives.

BMD: This stands for Bone Mineral Density and is calculated by dividing the BMC in grams by the projected area of the bone (measured size of the bone) in cm2 (BMD = BMC / AREA). Both BMC and area are calculated by the DXA and results are displayed in g/cm2. A total body screening provides a patient's skeletal status and is compared against a reference population to determine a T and Z score.

REFERENCE POPULATION: Reference populations are based on ambulatory subjects from the general population who were free from chronic diseases affecting bone and who were not taking medications that influence bone (e.g., corticosteroids, anticonvulsants, thyroxin). Reference populations can be useful for comparing a BMD result against a young adult average to generate a T-score or against the average for the patient's age to generate a Z-score.

T-SCORE: The T-Score indicates how many standard deviations a patient's BMD is from the average BMD value of the healthy Young Adult reference population. A negative T-Score indicates the patient's BMD is below the Young Adult average value. A positive T-Score indicates the patient's BMD is above the Young Adult average value.

Z-SCORE: The Z-Score indicates how many standard deviations a patient's BMD is from the average BMD value of an invididual with the same age and gender. Unlike a T-score that compares to the Young Adult average value, an Age Matched Z-score allows comparison to the reference population subjects of the same age and sex as the patient.

TOTAL BODY BMD: Though DXA systems are often used to make a clinical diagnosis of osteoporosis, a total body BMD is merely a bone density screening. Any test result, concern or further investigation should be discussed with a licensed medical doctor.

Thank you for your visit to The Ability Clinic. If you would like to book an appointment in the future to measure progress against your fitness/health goals, please call (905) 826-4048