



What Does DXA Measure?

DXA (Dual energy X-ray Absorptiometry) is a gold-standard tool for measuring bone density and body composition. By using low-intensity x-rays, we are able to quantify the amount of fat, bone, and fat-free (or lean) tissue throughout the body.

Bone Scans

Included in this report are records of the scan of your spine, hip, and forearm. If you are missing one or more, there is a reason why you haven't received it and your DXA technician(s) will either have discussed why the scan was not acquired at the time of your visit or the scan was not interpretable.

Variable of Interest

Bone mineral density (BMD) is a measure of the amount of minerals (mainly calcium and phosphorus) contained in a certain volume of bone. This is the key variable because it allows us to estimate how strong your bones are. While bone density/strength may differ somewhat by site (hip, spine, or forearm) you should always use the lowest T or Z score when considering your overall bone health.

Your **Z-Score** is an "age-matched" comparison, in which your BMD is compared to people of the same age, gender, and ethnicity. **If you are not a post-menopausal woman or a man over the age of 50, the Z-score is not a diagnostic test for osteoporosis.** However, it can be used as an early screening tool to see if you are at increased risk for developing osteoporosis in the future. Z-scores within +/- 2.0 are considered normal. However, if your Z-score is lower than -1.0, we recommend you consult with your Primary Care Physician.

In contrast, your **T-Score** is a comparison of your BMD to that of a young (age 20-29) adult reference population in the US. **T-scores are only used for post-menopausal women and men over the age of 50.** Your T-score, along with other factors, helps assess your risk of osteoporotic fracture. A T-score greater than -1.0 is considered normal; a T-score between -1 and -2.5 is considered low bone mass/osteopenia, while a T-scores below -2.5 is considered osteoporosis. If your T-score is below -1.0, we recommend you consult with your Primary Care Physician.



Whole Body Scan

Why DXA is Best

If you only know a person's height, weight, or BMI, you cannot confidently predict levels of muscle/fat or any associated health risks. However, DXA scans can determine the distribution of fat and fat-free/lean tissue (mostly muscle) throughout the body. Additionally, DXA scans are less likely to be influenced by systematic errors than other methods of estimating body fat.

While people say often they want to lose weight, what they really mean is they want to lose fat. If, for example, you were to go on a diet and lose weight, especially without including exercise in your program, most of your weight loss would be lean mass, which is undesirable. You would still possess the same amount of fat in a now-lighter body, and your percentage of body fat will consequently be higher. Remember, not all fat is bad! Some fat is absolutely essential and desirable - this amount will vary with age, gender, and other factors.

Using both the total amount of body fat and the relative distribution in the android (abdominal) and gynoid (hips and thighs) regions, we can make accurate predictions regarding health risk(s). Further, we can make recommendations for an appropriate weight and body fat percentage based on your specific goals regarding health and/or sport performance. Although there is no single ideal body fat percentage, values higher than **30-35% for adult women and 25% for adult men** are associated with increased risk of cardiovascular disease, Type-2 diabetes, metabolic syndrome, and some types of cancer. While there is less agreement among experts as to the minimum amount of body fat below which health may be impaired, values of at least 10% for men and 14% for women are believed to be required for overall health. It should be noted that these low values are rarely observed except in young lean athletes.



Results Table for Body Composition Analysis

This table below outlines terms and definitions that are used to understand fat distribution and body composition.

Column	Definition
Region	These are the areas of your body that the DXA scanned. These regions include your arms, legs, and trunk. Also, DXA can distinguish between your right and left limbs. Asymmetries of up to 10% are considered normal. However, if the asymmetry in the specific region is larger than 10%, the risk for biomechanical imbalances (specifically over time) and therefore risk for injury is significantly increased.
Fat Mass (g)	The quantity of body fat (in grams) in each body region.
BMC (g)	Bone Mineral Content (BMC) is the weight of your dry bone mass in grams. Typical BMC ranges for the whole body are 1.5-2.5 kg (3.3-5.5 pounds) for a woman and 2.5-3.5 kg (5.5-7.7 pounds) for a man – much lighter than most people expect! The amount that you have at each site is dependent upon the size of your bones.*
Lean Mass (g)	The quantity of your lean mass. In your arms and legs, this is effectively all muscle. In your trunk, this includes your organs in addition to muscle. We can consider all changes in lean mass to be changes in muscles, as organ size doesn't really change in adulthood.
Lean + BMC (g)	Lean mass and bone mineral content added together.
(%) Fat	This is the percentage of total mass within a specific region that is comprised of fat. See in "Why DXA is best" for more detail regarding what level is considered "healthy".

*1000 g = 1 kg; 1 kg = 2.2 lbs

** (e) or Estimated values are calculated when the DXA's limited scan area is unable to accommodate a part of the body.



Thank you!

We hope you enjoyed the DXA experience at EPARC. If you are interested in measuring progress/changes in your body composition, 3 to 4 months is a good interval between scans to see real and perceptible changes after beginning a program targeted at losing body fat and/or gaining lean muscle. However, because bone takes so much longer to change, 1 to 2 years is a more appropriate interval between measurements. For further information, or to schedule a follow up appointment, please contact us at **858-534-9315**. We look forward to seeing you again soon!

These scans were acquired for research and/or educational purposes and have not been reviewed by a qualified physician. For more information, please contact the EPARC team at 858-534-9315.

Exercise & Physical Activity Resource Center (EPARC)

University of California, San Diego
9500 Gilman Dr, La Jolla, CA 92093

Telephone: [REDACTED]

Name: [REDACTED]	Sex: [REDACTED]	Height: [REDACTED] in
Patient ID: [REDACTED]	Ethnicity: [REDACTED]	Weight: [REDACTED] lb
DOB: [REDACTED]		Age: [REDACTED]

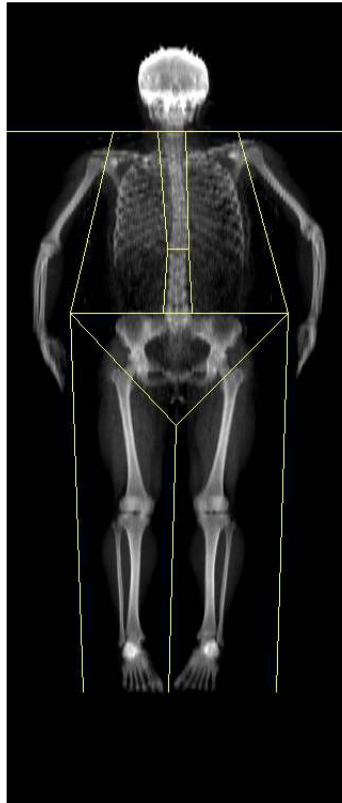


Image not for diagnostic use
k = 1.164, d0 = 48.0
318 x 150

Scan Information:

Scan Date: [REDACTED] ID: [REDACTED]
Scan Type: a Whole Body
Analysis: [REDACTED] 12:59 Version 13.6.0.5
Auto Whole Body
Operator:
Model: Horizon W (S/N 300786M)
Comment:

DXA Results Summary:

Region	Fat Mass (g)	Lean + BMC (g)	% Fat
L Arm	2097.8	2103.9	49.9
R Arm	2021.5	2165.1	48.3
Trunk	22140.9	21836.1	50.3
L Leg	4346.6	6360.1	40.6
R Leg	4178.1	6686.8	38.5
Subtotal	34785.0	39152.0	47.0
Head	1348.3	3740.9	26.5
Total	36133.3	42892.9	45.7

TBAR1209 - NHANES BCA calibration

Exercise & Physical Activity Resource Center (EPARC)

University of California, San Diego

9500 Gilman Dr, La Jolla, CA 92093

Telephone: [REDACTED]

Name: [REDACTED]	Sex: [REDACTED]	Height: [REDACTED] in
Patient ID: [REDACTED]	Ethnicity: [REDACTED]	Weight: [REDACTED] lb
DOB: [REDACTED]		Age: [REDACTED]

Referring Physician: EPARC

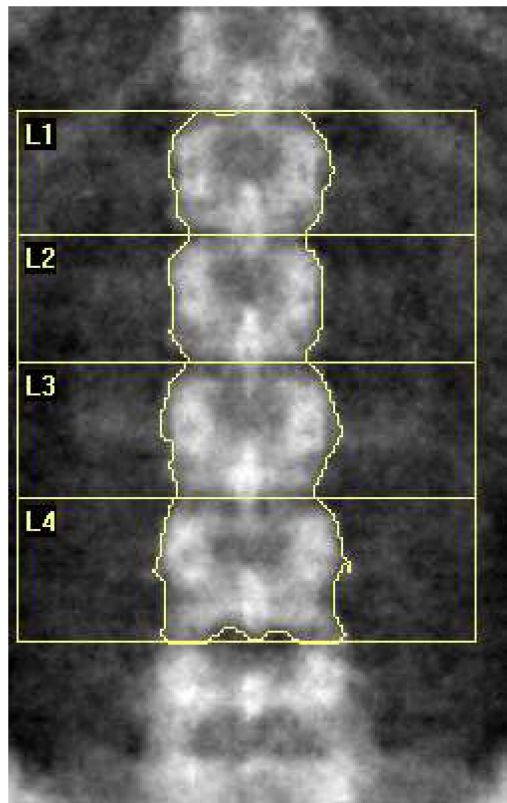


Image not for diagnostic use
k = 1.133, d0 = 46.8
116 x 134

Scan Information:

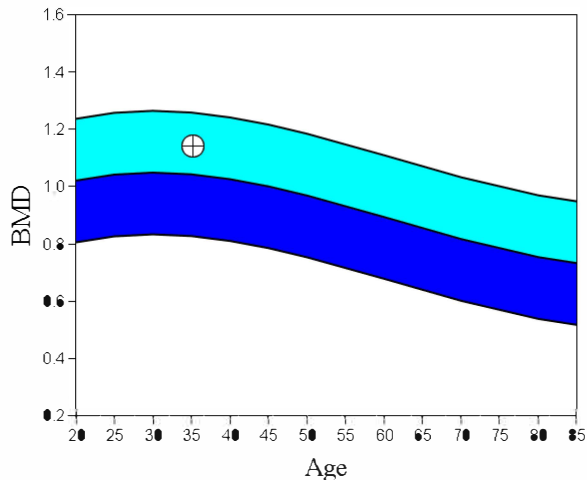
Scan Date: [REDACTED] ID: [REDACTED]
 Scan Type: x Lumbar Spine
 Analysis: [REDACTED] 12:56 Version 13.6.0.5:7
 Spine
 Operator:
 Model: Horizon W (S/N 300786M)
 Comment:

DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)	T - score	Z - score
L1	11.50	12.16	1.057		0.7
L2	11.72	13.49	1.151		1.2
L3	13.82	16.12	1.167		0.8
L4	16.03	18.73	1.169		1.0
Total	53.06	60.50	1.140		0.9

Total BMD CV 1.0%, ACF = 1.038, BCF = 1.008, TH = 8.942

Total



Comment:

T-score vs. White Female. Source:2012 BMDCS/Hologic Z-score vs. Hispanic Female. Source:Hologic

Exercise & Physical Activity Resource Center (EPARC)

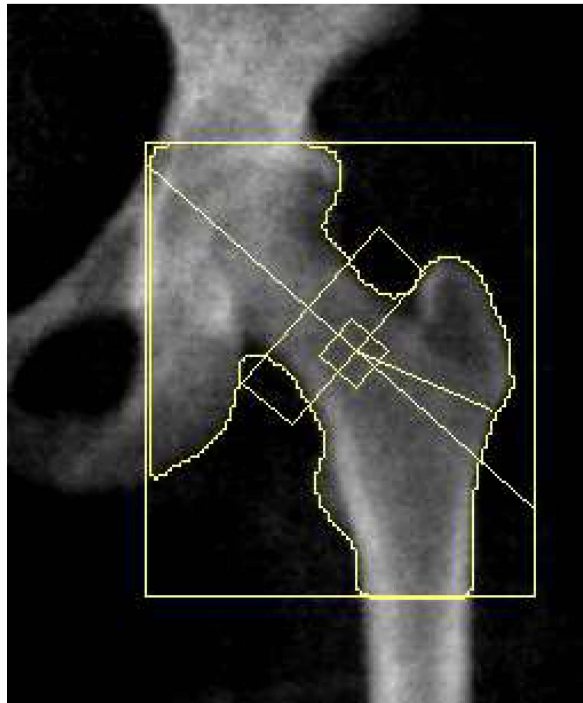
University of California, San Diego

9500 Gilman Dr, La Jolla, CA 92093

Telephone: [REDACTED]

Name: [REDACTED]	Sex: [REDACTED]	Height: [REDACTED] in
Patient ID: [REDACTED]	Ethnicity: [REDACTED]	Weight: [REDACTED] lb
DOB: [REDACTED]		Age: [REDACTED]

Referring Physician: EPARC



Scan Information:

Scan Date: [REDACTED] ID: [REDACTED]
 Scan Type: x Left Hip
 Analysis: [REDACTED] 12:57 Version 13.6.0.5:7
 Hip
 Operator:
 Model: Horizon W (S/N 300786M)
 Comment:

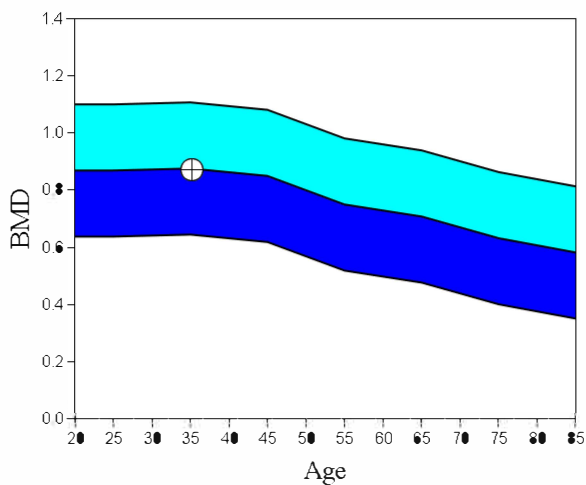
DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)	T - score	Z - score
Neck	4.25	3.71	0.873		0.0
Total	27.20	28.60	1.052		0.7

Total BMD CV 1.0%, ACF = 1.038, BCF = 1.008, TH = 6.879

Image not for diagnostic use
 k = 1.133, d0 = 51.0
 86 x 100
 NECK: 46 x 15

Neck



Comment:

T-score vs. White Female. Source:2012 BMDCS/NHANES White Female. Z-score vs. Hispanic Female. Source:NHANES

Exercise & Physical Activity Resource Center (EPARC)

University of California, San Diego

9500 Gilman Dr, La Jolla, CA 92093

Telephone: [REDACTED]

Name: [REDACTED]	Sex: [REDACTED]	Height: [REDACTED] in
Patient ID: [REDACTED]	Ethnicity: [REDACTED]	Weight: [REDACTED] lb
DOB: [REDACTED]		Age: [REDACTED]

Referring Physician: EPARC

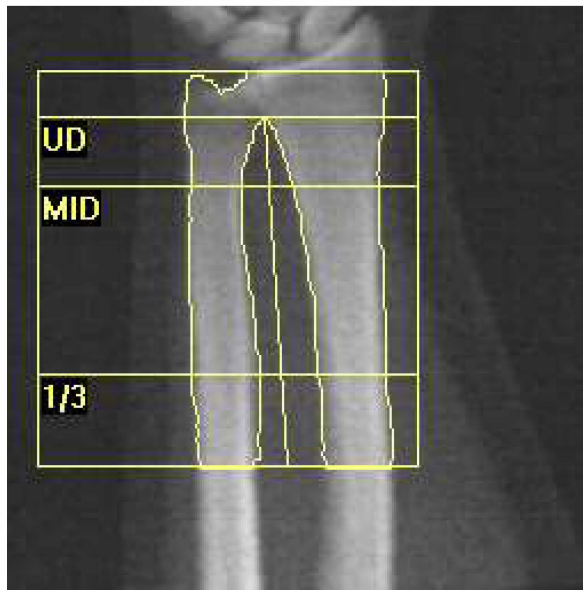


Image not for diagnostic use
k = 1.233, d0 = 69.8
167 x 87, Forearm Length: 23.0 cm

Scan Information:

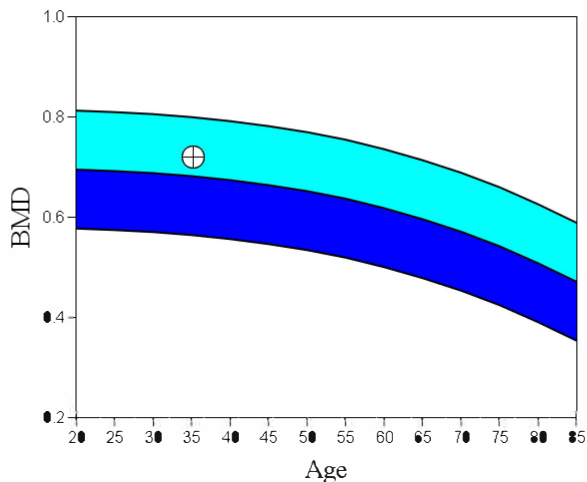
Scan Date: [REDACTED] ID: [REDACTED]
 Scan Type: a L.Forearm
 Analysis: [REDACTED] 12:56 Version 13.6.0.5:7
 Left Forearm
 Operator:
 Model: Horizon W (S/N 300786M)
 Comment:

DXA Results Summary:

Radius	Area (cm ²)	BMC (g)	BMD (g/cm ²)	T - score	Z - score
UD	3.05	1.57	0.515		1.4
MID	5.79	3.90	0.673		1.4
1/3	2.79	2.01	0.720		0.7
Total	11.63	7.48	0.643		1.4

Total BMD CV 1.0%, ACF = 1.038, BCF = 1.008

1/3 (Radius)



Comment:

T-score vs. White Female. Source:2012 BMDCS/Hologic Z-score vs. White Female. Source:2012 BMDCS/Hologic