STUDIO ATHLETICA SPORTS MEDICINE CENTRE

PUSH POUNDS

55 University Ave, Mezzanine M002
Toronto, ON, M5J 2H7
Phone: 416-722-3393

Name:
Patient ID: 018
Sex: Male

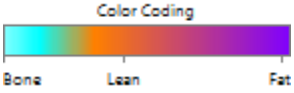
Birth Date:
Measured: 03-Feb-22

Height: 70.6 in.

Image not for diagnosis

Image not for diagnosis

Image not for diagnosis



Measured Date:	03-Feb-22
Total Mass (lb)	**185.2**
Fat Mass (lb)	**59.1**
Lean Mass (lb)	**120.0**
%Fat / Percentile:	**33.0 / 100**
A/G Ratio:	**1.04**
BMD / Age Matched Percentile	**1.221 / 58**

Region	Region (% fat)	Total Mass (lb)	Fat (lb)	Lean (lb)	BMC (lb)
Arms	22.8	20.3	4.6	14.9	0.8
Legs	32.0	68.4	21.9	44.1	2.5
Trunk	35.5	86.1	30.6	53.7	1.8
Android	36.0	14.3	5.2	9.1	0.1
Gynoid	34.2	29.6	10.1	18.8	0.6
Total	31.9	185.2	59.1	120.0	6.1

System ID: DF+16204

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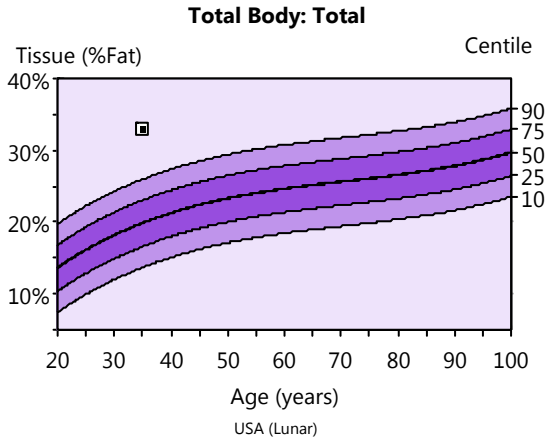
LEAN

Lean mass includes all parts of the body [organs, muscle, and fluids] but excludes body fat.

The higher the Tissue %Lean, the more muscular the body.

Total Mass:	185.2 lbs
Lean Mass:	120.0 lbs
Tissue %Lean:	64.8%

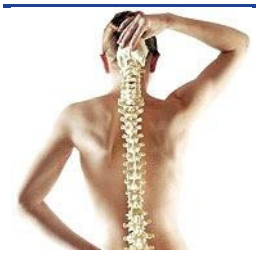
FAT

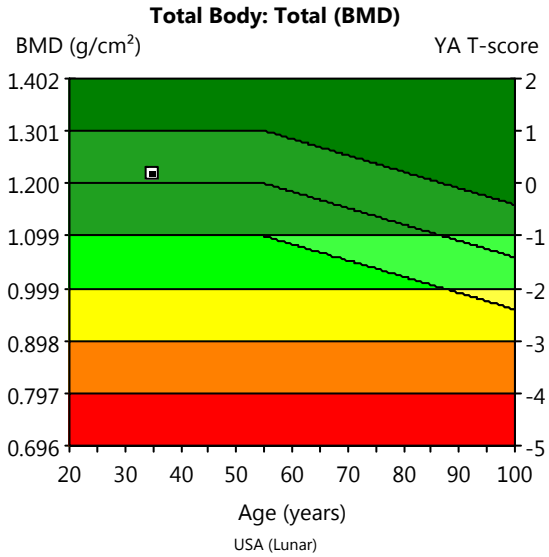


Fat Mass:	59.1 lbs
Tissue (%Fat)	33.0%

The composition reference graph shows your Total Body Tissue %Fat result [(fat / lean + fat) x 100] 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 median result for the reference population. The square on the graph represents your result. and you can see how you compare to this reference population.

BONE





Age	BMD (g/cm²)	T-score	Z-score	Centile
34.9	1.221	0.2	0.2	58

A bone densitometry test helps your physician to diagnose osteoporosis. The test compares 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" displayed as your Z-score. This information, along with other factors, helps physicians assess your risk of osteoporotic fracture.

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ANDROID / GYNOID (waist / hip)

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 often associated with apple-shaped body types.

Gynoid (hip) fat is often associated with pear-shaped body types.

Region	Tissue %Fat
Android:	36.2%
Gynoid:	34.9%
A/G Ratio:	1.04
	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

You total body has

31.9

percent body fat.

RELATIVE SKELETAL MUSCLE INDEX (RSMI)

RSMI represents the relative amount of muscle in the arms and legs. The DXA result is a screening tool and can help physicians with determining your risk for 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.

YOUR RSMI: **8.32 kg/m^2**

Sarcopenia Classification	RSMI Result
Males	< 7.26 kg/m^2
Females	< 5.45 kg/m^2

RSMI (Relative Skeletal Muscle Index) based on Baumgartner equation.
RSMI = (lean mass of arms[kg] + lean mass of legs[kg]) / (height[m])^2
Baumgartner RN, Koehler KM, Gallagher D, Romero L, Heymsfield SB, Ross RR, Garry PJ, Lindeman RD (1998) Epidemiology of sarcopenia among the elderly in New Mexico. Am J Epidermiol 147(8):755-763.

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RESTING METABOLIC RATE (RMR)

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: 1,540 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

Definition of Activity Levels

Sedentary RMR	X 1.2	Desk job with little or no exercise
Lightly Active RMR	X 1.375	20 mins light exercise/sports 1-3 days/week
Moderately Active RMR	X 1.55	30 mins moderate exercise or sport 3-5 days/week
Very Active RMR	X 1.725	60 mins hard exercise or sport 5-7 days/week
Extremely Active RMR	X 1.9	Athlete; hard daily exercise/sports and physical job or training

Calorie Conveter

1 gram of protein =	4 calories
1 gram of carbohydrates =	4 calories
1 gram of fat =	9 calories

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Name:	Majidi, Amir				
Patient ID:	018	**Birth Date:**	05-Mar-87	**Height:**	70.6 in.
Sex:	Male	**Measured:**	03-Feb-22		

Lean Mass Balance

Lean mass balance is a comparison of your body's right to left lean mass symmetry. A lean mass difference close to zero indicates a balance of muscle. An injury, non-symmetrical training, or a health condition may cause disproportionate lean mass differences, but only your physician can determine if a health condition is the related cause.

Arms Composition	Both Arms	Right Arm	Left Arm	Total Arm Difference
Lean Mass (lb)	14.9	7.5	7.3	0.2
Fat Mass (lb)	4.6	2.3	2.3	0.0
Bone Mineral Content (lb)	0.8	0.4	0.4	0.0
Total Mass (lb)	20.3	10.3	10.0	0.2

Legs Composition	Both Legs	Right Leg	Left Leg	Total Leg Difference
Lean Mass (lb)	44.1	21.7	22.4	-0.7
Fat Mass (lb)	21.9	10.7	11.2	-0.5
Bone Mineral Content (lb)	2.5	1.2	1.2	0.0
Total Mass (lb)	68.4	33.6	34.8	-1.2

Trunk Composition	Both Trunks	Right Trunk	Left Trunk	Total Trunk Difference
Lean Mass (lb)	53.7	25.4	28.3	-2.9
Fat Mass (lb)	30.6	15.6	15.0	0.6
Bone Mineral Content (lb)	1.8	0.9	0.9	0.1
Total Mass (lb)	86.1	41.9	44.2	-2.3

Total Composition	Total Body	Right Total	Left Total	Total Body Difference
Lean Mass (lb)	120.0	58.2	61.8	-3.7
Fat Mass (lb)	59.1	29.5	29.6	0.0
Bone Mineral Content (lb)	6.1	3.1	3.1	0.0
Total Mass (lb)	185.2	90.8	94.4	-3.7

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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.

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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 invidividual 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.