InBody970

Result Sheet Interpretation

Body Composition Analysis

Why should you take an InBody Test?

The human body is composed of four components- water, protein, minerals, and fat. Each individual has a different amount of these four components, or body composition, depending on factors like their age and gender. Additionally, body composition is frequently used as a predictor of overall health status.

The InBody is an advanced body composition analyzer that accurately assesses body composition and provides insightful health data that can be used to educate and empower individuals to improve their health and wellness. Medical, fitness, and nutrition professionals also use this data to precisely track progress, validate, and optimize programs, and motivate their clients.

Precautionary steps for the InBody Test

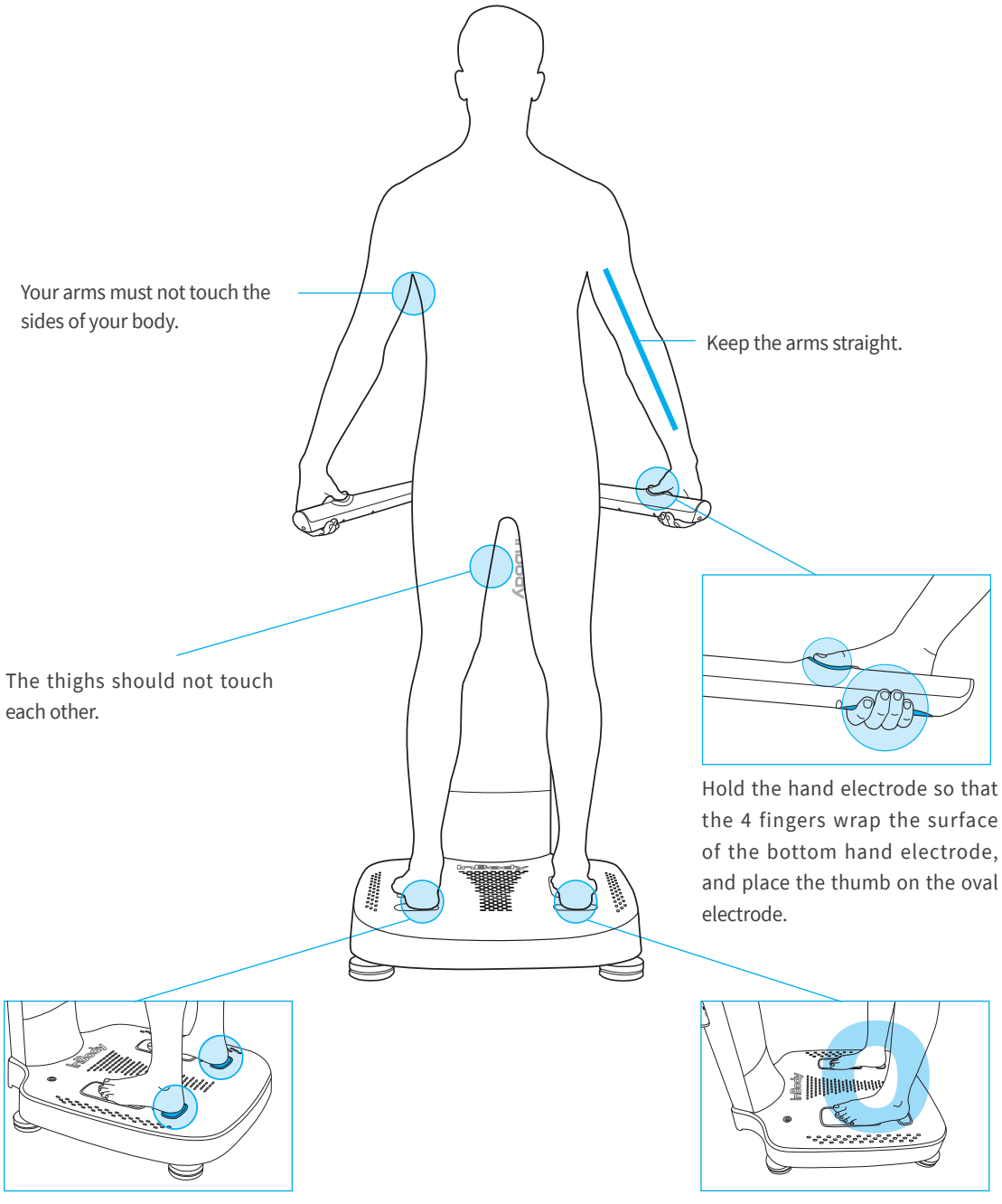
For the most accurate results, please follow the precautionary steps below before the InBody Test.

1. Do not test if you have any implanted medical devices like pacemakers
   The InBody sends a weak current throughout the body, which may interfere with the implanted medical device and cause life-threatening malfunctions.
2. Do test on an empty stomach
   The food in your stomach affects your weight and is considered part of the body composition, which may affect your result.
3. Do stand upright for at least five minutes before the test
   The fluid distribution changes as your posture changes from lying down to sitting to standing because the standing causes gravity to pull blood to the legs.
4. Do use the bathroom before the test
   The water in the bladder can not be reached for the measurement and this will result in an increase in fat mass and affect your test result.
5. Do maintain the same condition and take test in the morning if possible
   If an initial test was taken in the morning, it is recommended to maintain the same condition for the subsequent test. This will ensure that the changes observed are direct result of recent lifestyle changes to diet or exercise, rather than external factors. The body water also tends to be driven to your lower body during the day, which can affect the test result.
6. Do wipe your hands and feet before the test
   If your hands and feet are dry or have dead skin cells, the test may not work well due to poor electrical contact between the electrode and the body, which affects the test result.
7. Do test in a room temperature range between 20°C and 25°C
   Your body is the most stable at a room temperature range between 20°C and 25°C. Testing in hot or cold temperature can change the blood circulation and affect the test result. The human body remains stable at room temperature, but the body composition may change temporarily in cold or hot conditions.
8. Do not exercise before the test
   The exercise may lead to increased blood circulation which changes fluid distribution and affects the test result.
9. Do not use a shower or sauna before the test
   Showering in hot or cold temperature can change the blood circulation and affect the test result.
10. Do not test during menstruation
    During menstruation, there are constant fluctuations in body water which affect the test result.

Steps for conducting the InBody Test

Proper posture is essential for accurate result.

1. Please remove heavy objects such as jewelry, watches, belts, wallet, and jackets before the test.
2. Please do not talk or move during the weight measurement. You may grab the handle while measuring your weight. (*InBody970 only)
3. Enter your ID, height, age, and gender using the touchscreen or keypad.
4. Press [Enter] and grab the handle, placing your hands on the hand electrodes as shown in the image below.
5. When you are in the correct testing posture, the InBody will start to measure your body composition. If you remove your hands from the hand electrodes, it can affect your test result, so please maintain the correct posture during testing.



InBody970

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A. Description of Result Sheet

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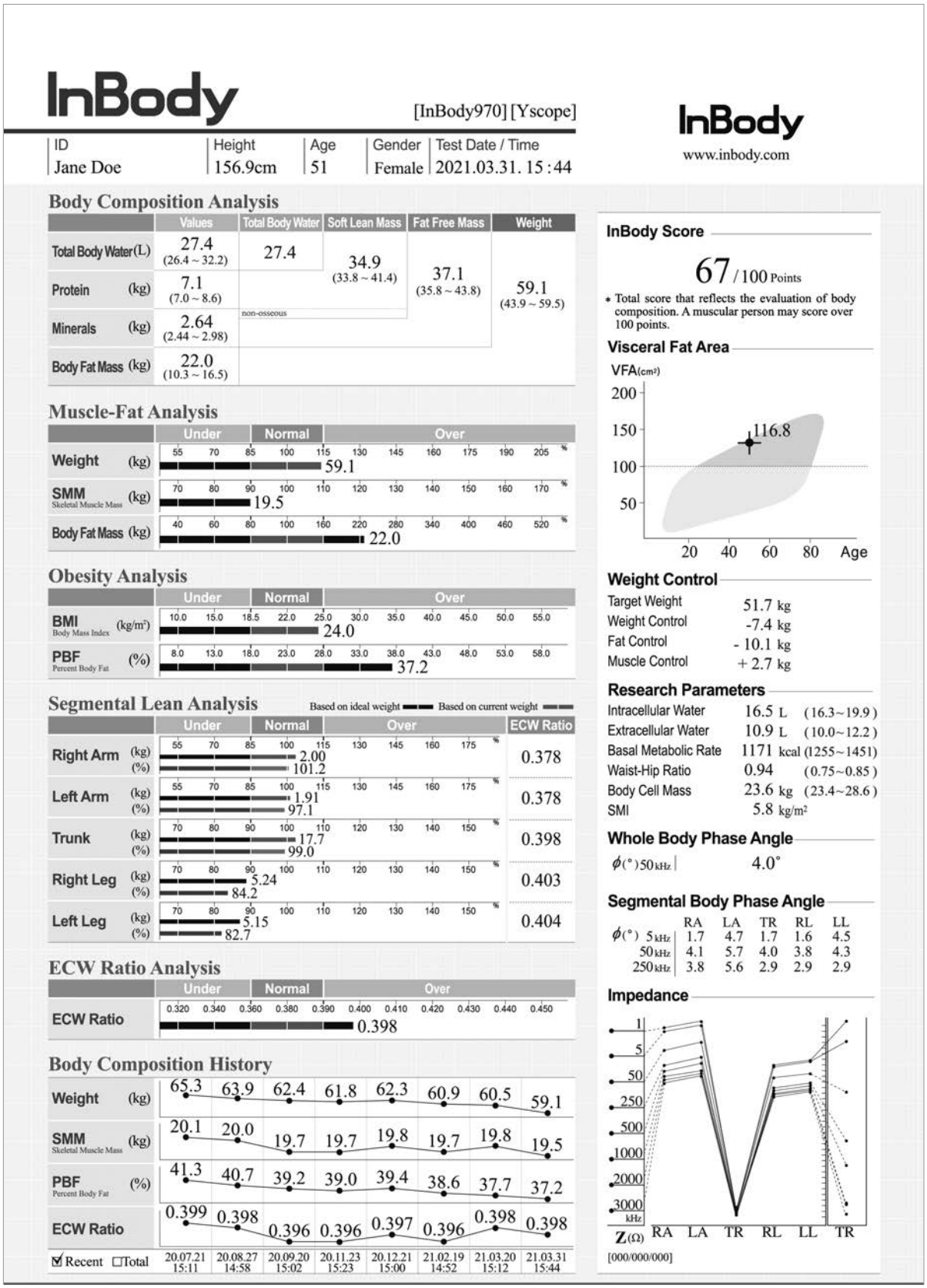
(Ⓑ : Body Composition Result Sheet , Ⓦ : Body Water Result Sheet, Ⓒ : Body Composition Result Sheet for Children, Ⓡ :Research Result Sheet, Ⓥ : Visceral Fat Result Sheet)

I. Body Composition Result Sheet



InBody

[InBody970] [Yscope]

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

InBody
www.inbody.com

Body Composition Analysis

	Values	Total Body Water	Soft Lean Mass	Fat Free Mass	Weight
Total Body Water (L)	27.4 (26.4 ~ 32.2)	27.4	34.9 (33.8 ~ 41.4)	37.1 (35.8 ~ 43.8)	59.1 (43.9 ~ 59.5)
Protein (kg)	7.1 (7.0 ~ 8.6)	non-osseous			
Minerals (kg)	2.64 (2.44 ~ 2.98)				
Body Fat Mass (kg)	22.0 (10.3 ~ 16.5)				

Muscle-Fat Analysis

	Under	Normal	Over
Weight (kg)		59.1	
SMM Skeletal Muscle Mass (kg)		19.5	
Body Fat Mass (kg)			22.0

Obesity Analysis

	Under	Normal	Over
BMI Body Mass Index (kg/m²)		24.0	
PBF Percent Body Fat (%)			37.2

Segmental Lean Analysis

Based on ideal weight ▬ Based on current weight ▬

	Under	Normal	Over	ECW Ratio
Right Arm (kg)		2.00		0.378
(%)		101.2		
Left Arm (kg)		1.91		0.378
(%)		97.1		
Trunk (kg)		17.7		0.398
(%)		99.0		
Right Leg (kg)		5.24		0.403
(%)		84.2		
Left Leg (kg)		5.15		0.404
(%)		82.7		

ECW Ratio Analysis

	Under	Normal	Over
ECW Ratio		0.398	

Body Composition History

	20.07.21 15:11	20.08.27 14:58	20.09.20 15:02	20.11.23 15:23	20.12.21 15:00	21.02.19 14:52	21.03.20 15:12	21.03.31 15:44
Weight (kg)	65.3	63.9	62.4	61.8	62.3	60.9	60.5	59.1
SMM Skeletal Muscle Mass (kg)	20.1	20.0	19.7	19.7	19.8	19.7	19.8	19.5
PBF Percent Body Fat (%)	41.3	40.7	39.2	39.0	39.4	38.6	37.7	37.2
ECW Ratio	0.399	0.398	0.396	0.396	0.397	0.396	0.398	0.398

☑ Recent ☐ Total

InBody Score

67 / 100 Points

* Total score that reflects the evaluation of body composition. A muscular person may score over 100 points.

Visceral Fat Area

VFA(cm²)

200 / 150 / 100 / 50 — 116.8 — 20 40 60 80 Age

Weight Control

Target Weight	51.7 kg
Weight Control	-7.4 kg
Fat Control	- 10.1 kg
Muscle Control	+ 2.7 kg

Research Parameters

Intracellular Water	16.5 L	(16.3~19.9)
Extracellular Water	10.9 L	(10.0~12.2)
Basal Metabolic Rate	1171 kcal	(1255~1451)
Waist-Hip Ratio	0.94	(0.75~0.85)
Body Cell Mass	23.6 kg	(23.4~28.6)
SMI	5.8 kg/m²	

Whole Body Phase Angle

ϕ(°) 50kHz | 4.0°

Segmental Body Phase Angle

	RA	LA	TR	RL	LL
ϕ(°) 5kHz	1.7	4.7	1.7	1.6	4.5
50kHz	4.1	5.7	4.0	3.8	4.3
250kHz	3.8	5.6	2.9	2.9	2.9

Impedance

1 / 5 / 50 / 250 / 500 / 1000 / 2000 / 3000 kHz

RA LA TR RL LL TR

Z(Ω)

[000/000/000]

A. Description of Result Sheet Parameters

* The result value may change If Yscope is not connected.

1. Customer Information and Logo

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

InBody
www.inbody.com

Information such as ID, Height, Age, Gender, and Test Date/Time is displayed at the top of the result sheet.
Additionally, there is a designated space for a company logo.

1) You can input an ID using the keypad or touchscreen.
   The ID can use a combination of letters and numbers up to a maximum of 14 characters.

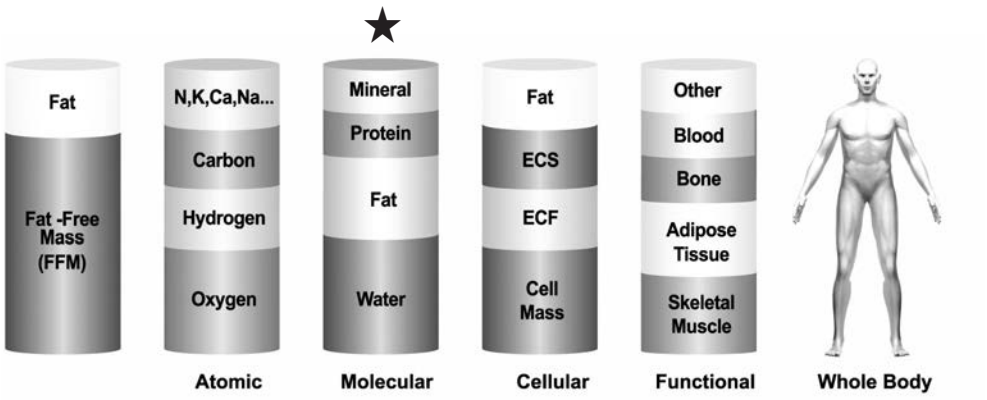
2) You can also input height, age, and gender using the keypad or touchscreen.

3) You can input a logo using a software provided by InBody. You can also input your business information such as the name, phone number, and address.

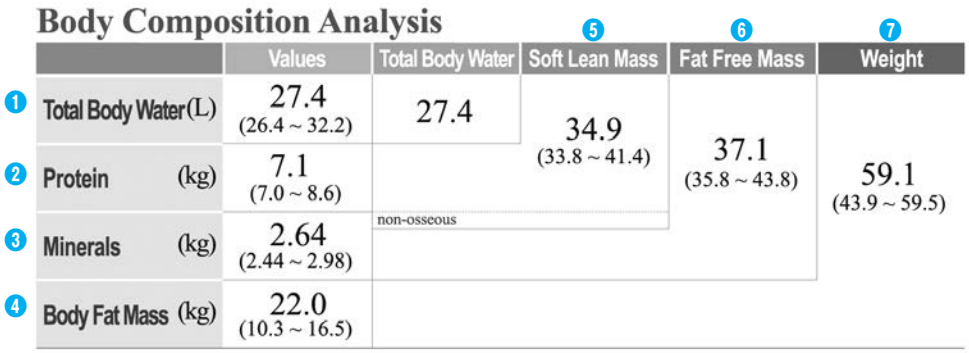
* Please contact Customer Service to change the logo.

2. Body Composition Analysis

Body composition is a method of describing what the body is made of. There are many ways to break down body composition as shown below. InBody uses the Molecular Assessment (marked with ★ in the image below) to analyze and quantitatively divide body composition into four different components: Body Water, Protein, Minerals, and Fat.



Ref 1. Vivian H. Heyward, Applied Body Composition Assessment, Human Kinetics, p.9, 1996



Body Composition Analysis

	Values	Total Body Water ❺	Soft Lean Mass ❻	Fat Free Mass ❼	Weight
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❷ Protein (kg)	7.1 (7.0 ~ 8.6)				
❸ Minerals (kg)	2.64 (2.44 ~ 2.98)	non-osseous			
❹ Body Fat Mass (kg)	22.0 (10.3 ~ 16.5)				

(1) Body Water

What is Body Water?

Body water comprises the biggest part of body composition. It is distributed in all the cells and fluids of the body, which explains why 50~70% of the body is made up of water. Maintaining balanced body water is important for optimal health. Losing a little bit of body fat or protein has a negligible effect on long-term health, but a 10% loss of body water has an immediate negative impact on the body, and loss of more body water may lead to death. Most of body water is stored in what we call fat free mass. The amount of fat free mass an individual has depends on factors like their age and gender. For example, younger people tend to have a larger amount of body water that gradually decreases with age. Additionally, men tend to have more body water than women. In athletes with very low body fat, 70% of their body is made up of water. On the other hand, obese people with high body fat have about 50% of body water. Most of body water is in the cells, with the remainder in the blood and interstitial fluid. The water inside the cell membrane is called the Intracellular Water, and the water in the blood and interstitial fluid is called the Extracellular Water.

Role of Body Water

Body water helps regulate body temperature and transports nutrients and wastes. In addition, body water is the main component of blood and plays a vital role as a transportation channel, and medium for various chemical reactions.

Body Water and Health

The body must maintain a certain amount of water. The brain, in particular, contains more water than other tissues in the body, so it is very important to supply it with enough water to function properly. Average adults discharge about 2.5 liters of water through breathing, sweating, urine, and feces per day, so you need to consume at least that much water every day. Fat free mass, which is all of your body components except for fat, is composed of body water and protein. About 73% of fat free mass is made up of water, and muscle takes up a lot of fat free mass. Therefore, the more muscle mass you have, the more body water you will also have.

(2) Protein

What is Protein?

Protein is an organic complex that contains nitrogen and comprises 12% to 15% of the body composition. It is the component of muscles, skin, bones, teeth, hair, blood, and the immune system. Unlike carbohydrates and fats, protein contains nitrogen, so its unique functions in the body cannot be replaced by other nutrients. Therefore, a lack of protein can negatively impact your essential body functions and lead to serious health issues.

Role of Protein

The main role of protein is to supply the essential nitrogen compounds that the body needs to grow and stay healthy. Protein in the body along with fat is an important component of the cell membrane as well as the inside of cell. It synthesizes enzymes, antibodies, and hormones, transports and stores essential substances in the body, and maintains body fluid and acid-base balance. Protein is also used as an energy source and synthesizes glucose when needed. When energy sources such as carbohydrates are not ingested, proteins are converted into glucose and used to provide energy. For this reason, protein is often used as an indicator of nutritional evaluation.

Protein and Health

Protein Deficiency

Protein deficiency often leads to energy deficiency, inhibited growth, and lowered immunity. Symptoms such as edema, anemia, fatigue, decreased basal metabolism, skin pigmentation disorders, and fatty liver may also occur due to protein deficiency. In nutritional deficiency, protein is broken down and used as fuel to supply energy, resulting in severe weight loss in the case of cancer patients, people with chronic illnesses, and the elderly. When you are on a weight loss diet and if you do not consume enough protein, muscle loss will occur. To prevent this, it is important to do exercise and eat a nutritionally balanced diet, or you will lose muscle rather than fat, which is unhealthy weight loss. In general, your muscle mass and metabolic capacity decrease with age, so even if you eat the same amount of food, your body fat can increase. Thus, it is recommended to maintain or increase muscle mass through regular exercise.

* At InBody, a lack of protein means that there is an insufficient amount of proteins that comprise muscle mass rather than inadequate protein consumption.

(3) Minerals

What are Minerals?

Minerals refer to the total amount of inorganic components dissolved in bones and body water and comprise 5% to 6% of the body composition. Generally, it describes the amount of bone and teeth, except for small amounts of ionic components dissolved in body water. Minerals are not an energy source, but they are essential nutrients for sustaining life and maintaining optimal health. The body needs 14 different types of minerals to grow and maintain good health.

Role of Minerals

Minerals are key components of several substances in the body and regulate many essential functions and processes. Minerals are involved in the formation of skeletal, dental, and other types of tissues, and play a role in the heartbeat, muscle contraction, and nerve impulse transmission. In addition, minerals help maintain the acid-alkaline balance of body fluids, regulate metabolism, and are a vital component of enzymes involved in cell activity.

Minerals and Health

A lack of minerals during growth period can inhibit growth, and lead to rickets or bone deformities. An adult who lacks sufficient muscle mass may also have a high probability of low bone density and a higher risk of developing osteomalacia and osteoporosis. If you have a lot of muscle, the weight of your bones also increases, which means an increase in minerals. To help prevent osteomalacia and osteoporosis, you need to increase your muscle mass by exercising. According to the BIA principle, minerals cannot be measured directly but can be obtained through correlation studies with DEXA, a bone density diagnostic equipment. Therefore, the minerals provided by the InBody are estimated values from the subject's muscle mass and physical development status. If the subject's minerals are significantly lower than the reference value, it is recommended to take a bone density test.

(4) Body Fat Mass

What is Body Fat?

Body fat refers to the total amount of lipids that can be extracted from fat tissue and others. Body fat is largely classified as subcutaneous fat, which is accumulated in the base layer of the skin, and visceral fat, which is stored between the organs in the abdominal cavity. Generally, the fat distribution may vary depending on factors like obesity and frequency of exercise. The standard of percentage body fat is 15% for the adult male and 23% for the adult female.

Role of Body Fat

Body fat can be classified as essential and storage fat. Body fat in the bone marrow, heart, lungs, liver, spleen, kidneys, intestines, muscles, and lipid-rich tissues throughout the central nervous system is called essential fat, whereas fat that accumulates in adipose tissue is called storage fat. Essential fat is required by the body to perform essential functions and compose the cell membrane. Storage fat is composed of subcutaneous fat and visceral fat. Both types of storage fat protect the body from external force, act as insulation to maintain body temperature and can also be used as energy.

Body Fat and Health

Body fat acts as a storage for energy and can be stowed indefinitely under the skin. If the amount of body fat exceeds a certain level, it can increase the risk of lifestyle-related diseases such as hypertension, hyperlipidemia, arteriosclerosis, fatty liver, diabetes, and cancer. On the other hand, an insufficient amount of body fat can cause depression, chills, or infertility. Therefore, it is important to maintain the right amount of fat for good health.

(5) Soft Lean Mass

Soft lean mass is the total body weight subtracted by fat and mineral mass in bone. Soft lean mass in body composition analysis is different from skeletal muscle, meaning the weight excluding bone minerals from fat free mass.

Soft Lean Mass = Fat Free Mass - Bone Mineral Content

(6) Fat Free Mass

Fat free mass is what is left over when fat is subtracted from the weight.

Fat Free Mass = Total Body Water + Protein + Minerals

Muscle is the biggest component of the fat free mass. Except for the intramuscular fat that exists between muscles, all muscle cells are classified as fat free mass. So, the more muscle mass you have, the more fat free mass you have, and if you have more muscle, you basically need more energy, so your basal metabolic rate is also high. Therefore, a person with a high basal metabolic rate burns more calories when he or she consumes the same amount of calories, and as a result, there is less energy surplus and the rate of accumulation as fat is lowered, thereby reducing the risk of becoming obese.

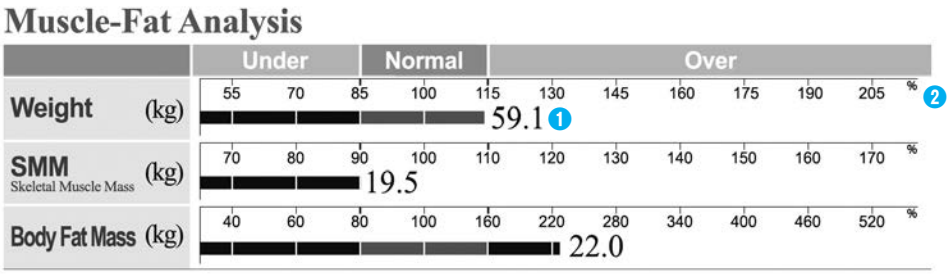
(7) Weight

Weight is made up of body water, protein, minerals, and body fat. Therefore, weight is the sum of these body composition components.

Weight = Total Body Water + Protein + Minerals + Fat

3. Muscle-Fat Analysis

The balance between Skeletal Muscle Mass and Body Fat Mass is a key health indicator. Muscle-Fat Analysis shows this balance by comparing the length of the bars for Weight, Skeletal Muscle Mass, and Body Fat Mass.
The volume of Skeletal Muscle Mass is less than Body Fat Mass in the same weight. Therefore, if two people have the same height and weight, the person who has more Skeletal Muscle Mass will have a slimmer and stronger body type.
In addition, a muscular type of person has a high basal metabolic rate, so it consumes a lot of energy even when there is no activity and does not gain weight easily.
The balance between Weight, Skeletal Muscle Mass, and Body Fat Mass can be analyzed by comparing the length of each bar.



Interpretation

❶ Weight, Skeletal Muscle Mass, and Body Fat Mass are displayed in kg.

❷ Length of the bar of Weight, Skeletal Muscle Mass, and Body Fat Mass is displayed based on the ideal weight.

1) Weight

Ideal weight refers to the recommended weight based on the height.

Ideal weight (kg) = Ideal BMI (kg/㎡) X Square of Height (㎡)

Ideal BMI

	Male	Female
Asian	22	21
Westerner	22	21.5

The current weight status can be checked according to the ideal weight calculated using the equation above.
For children under the age of 18, the ideal BMI changes by growth status.

2) Skeletal Muscle Mass

The muscles in the body are largely divided into cardiac muscle, smooth muscle, and skeletal muscle. Skeletal muscles are located in between the bones and joints and are responsible for voluntary movement. Skeletal Muscle Mass can easily be changed by physical activity. When the Skeletal Muscle Mass is at 100%, it means that there is enough muscle mass compared to your ideal weight.

3) Body Fat Mass

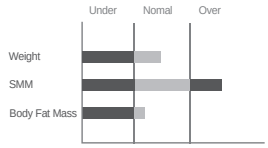
If Body Fat Mass is at 100%, it means that there is sufficient amount of body fat compared to your ideal weight.

Interpretation

The following is how to interpret Muscle-Fat analysis based on the length of the bars for Weight, Skeletal Muscle Mass, and Body Fat Mass.

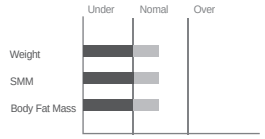
1) Normal Weight and Strong Type

This body type has a Weight and Body Fat Mass within the normal range and Skeletal Muscle Mass above the normal range.



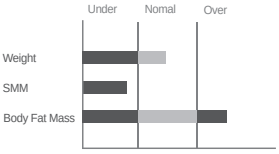
2) Normal Weight and Healthy Type

This body type has a Weight, Skeletal Muscle Mass, and Body Fat Mass within normal range.



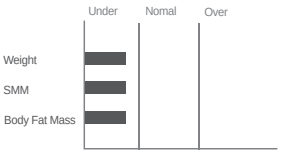
3) Normal Weight and Obese Type

This body type has an normal Weight, but Skeletal Muscle Mass is below and Body Fat Mass is above the normal range. Since the Weight is in the normal range, people with this body type do not look obese, but there is relatively a lot of Body Fat Mass in their body.



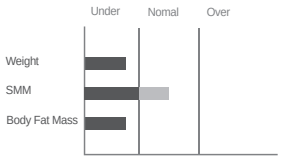
4) Underweight and Weak Type

The Weight, Skeletal Muscle Mass, and Body Fat Mass are all under the normal range. This may not be getting enough energy and nutrients needed for physical activity. In children, the growth may be slow and immunity can also be weakened.



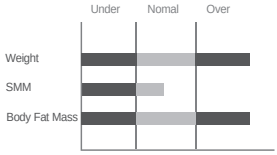
5) Underweight and Strong Type

The Weight and Body Fat Mass are under, but skeletal Muscle Mass is in the normal range. When Body Fat Mass is lower, the risk of lifestyle diseases is decreased, but if the Body Fat Mass is too low, it can cause other health issues.



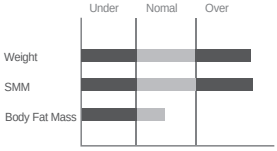
6) Overweight and Weak Type

The Weight and Body Fat Mass are over, but Skeletal Muscle Mass is in the normal range. To improve this body composition type, increase Muscle Mass via strength training and decrease Body Fat Mass with a nutritious, low-calorie diet and cardio exercise.



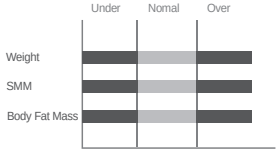
7) Overweight and Strong Type

The Weight and Skeletal Muscle Mass is over, and Body Fat Mass is below the normal range.
This body type is usually seen in athletes.



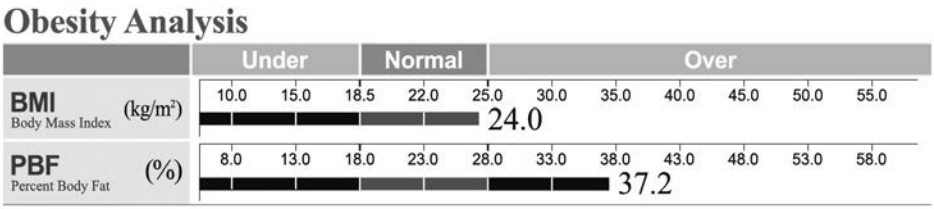
8) Overweight and Obese Type

The Weight, Skeletal Muscle Mass, and Body Fat Mass are above the normal range. Individuals with this body type may think that it is not a problem because of a large amount of Muscle Mass, but this muscle may have resulted from the increased Weight of through strength training. Therefore, people with this body type may need to lose weight even though their Muscle Mass is high.



4. Obesity Analysis

It is not possible to accurately analyze obesity based on height or weight values alone. For a more accurate obesity analysis, it is necessary to examine not only the body mass index (BMI), which is calculated from height and weight, but also the body fat percentage, which is the ratio of body fat to body weight. The InBody can detect hidden health risks like **Sarcopenic Obesity**, in which a person appears slim on the outside but has a high Percent Body Fat.



Interpretation

BMI helps analyze appearance obesity while Percent Body Fat helps analyze actual obesity.

1) BMI

BMI, or Body Mass Index, helps analyze appearance obesity. It is calculated using the following equation:BMI=Weight/Height^2(kg/m^2). BMI is a conventional index of obesity analysis and is widely used in the medical, dietetics, and sports medicine fields. Many professionals rely on BMI because it is easy to calculate and convenient. However, BMI does not accurately analyze body fat or identify potential health risks associated with obesity and other conditions. The primary problem with BMI is that it does not differentiate between muscle and fat. For example, athletes with a lot of muscle mass may be incorrectly categorized as obese using BMI but the InBody Test would show that they have low Percent Body Fat, which is a much more accurate indicator of overall health.

Normal Range of BMI

	Male	Female
BMI	22	21
	WHO : 18.5 ~ 24.9	WHO : 18.5 ~ 24.9
	Asian : 18.5 ~ 22.9	Asian : 18.5 ~ 22.9

※ The normal range of BMI for children will apply when a child is under 18 years old.

2) Percent Body Fat

Percent Body Fat is the ratio of the Body Fat Mass to the Weight. Analyzing the ratio of Body Fat Mass to Weight is more appropriate than Body Fat Mass itself. The ideal percent body fat for males is 15% and 23% for females compared to the weight. For children under 18, the ideal Percent Body Fat is presented based on the average height by age due to changes in body composition during growth periods. However, if the growth rate is faster than the same age group, the growth status is considered for determining ideal percent body fat.

$$\text{Percent Body Fat(\%)} = \frac{\text{Body Fat Mass(kg)}}{\text{Body Weight (kg)}} \times 100$$

If the weight is 50 kg and Body Fat Mass is 12 kg:

$$\text{Percent Body Fat(\%)} = \frac{12\text{kg}}{50\text{kg}} \times 100 = 24\%$$

Normal Range of Percent Body Fat

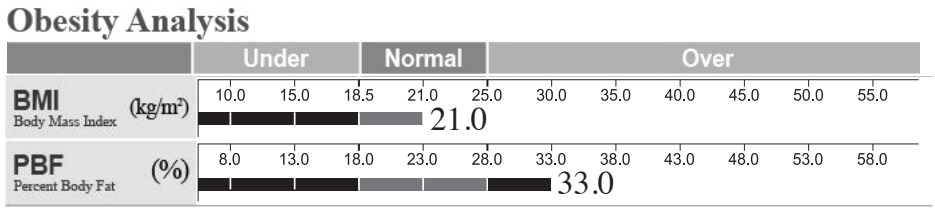
Normal Range	Male	Female
Normal	10 ~ 20%	18 ~ 28%
Slightly Obese	20 ~ 25%	28 ~ 33%
Obese	Over 25%	Over 33%

* Ideal Percent body fat of children will apply when a child is under 18-years old.

Interpretation

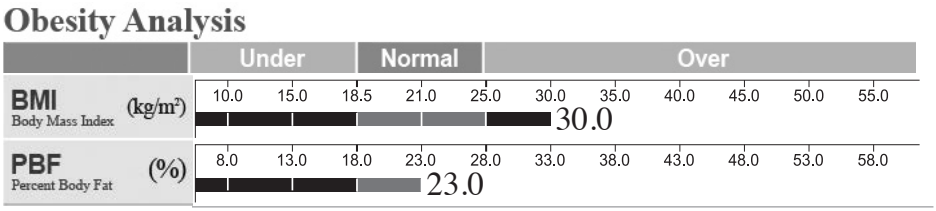
Body types can be analyzed by comparing the length of the bars for BMI and PBF.

1) Sarcopenic Obesity Type



BMI is in the normal range, so it looks like the subject is normal body type. However, it is actually obese type because the Percent Body Fat is above the normal range.

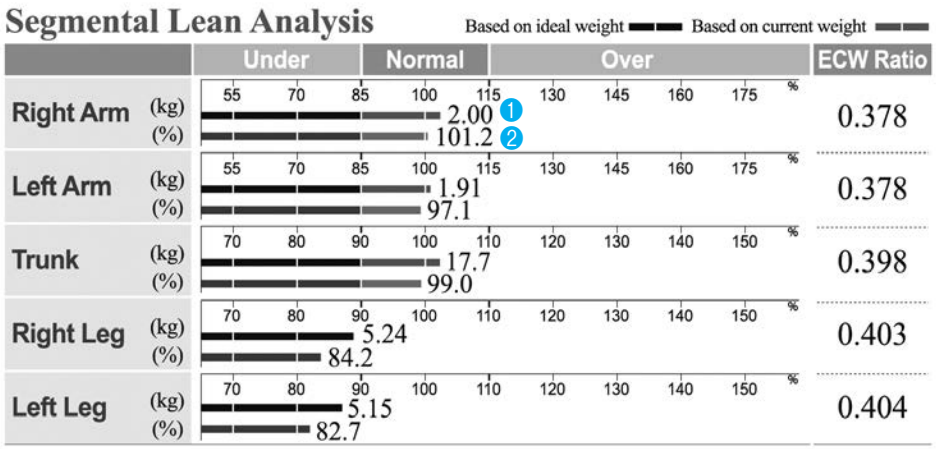
2) Muscular Type



BMI is above the normal range, so it looks like the subject is obese body type. However, it is actually muscular type because the Percent Body Fat is in the normal range.

5. Segmental Lean Analysis

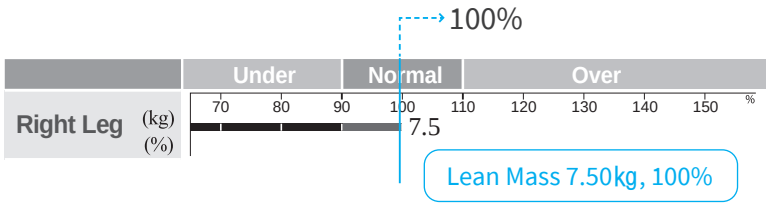
Analyzing the lean mass in each segment helps identify imbalances and insufficiently developed muscle mass, which can be used to develop targeted exercise programs. The lean mass of the arms, trunk (torso), and legs are represented by two bars. Of the two bar graphs, the top bar shows how much lean mass in kg is in a given segment compared to the ideal weight while the bottom bar shows that to the current weight.



Interpretation

❶ Top bar: It shows the amount of lean mass in kg. The length of the bar shows how much lean mass there is compared to the ideal body weight.

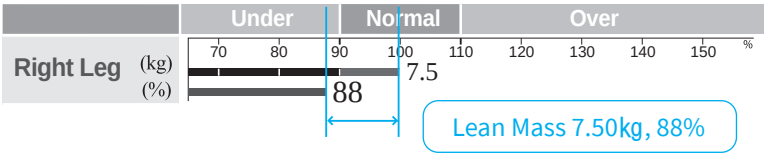
e.g.



In other words, 7.5 kg of lean mass in the right leg is 100% of the ideal mass based on the ideal weight.

❷ Bottom bar: It shows how well your lean mass can support your weight as a percentage.

e.g.



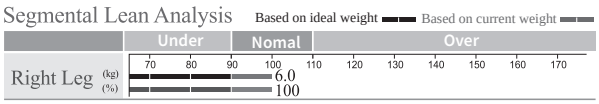
In other words, 7.5 kg of lean mass is 100% sufficient to the ideal body weight, but compared to the current weight, it is only 88% sufficient. Therefore, 7.5 kg of lean mass is not enough to support the current body weight.

Interpretation

If the top bar is within or above the normal range and the bottom bar is under, then the lean mass is not sufficient for the current weight. The InBody analyzes not only the segmental lean mass, but also whether the amount is sufficient to support the current weight.

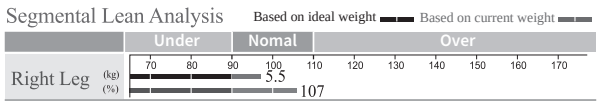
1) Basic interpretation

Ideal weight (Height 160 cm, weight 55 kg, lean mass of right leg 6.0 kg = 100%)



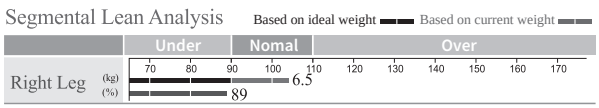
The 6.0 kg of lean mass in right leg is sufficient based on the ideal weight of 55 kg, and it is 100% of the lean mass to support the current weight of 55 kg. In other words, the lean mass in right leg is sufficient for both ideal weight and current weight when the height is 160 cm.

Underweight (Height 160 cm, weight 45 kg, lean mass of right leg 5.5 kg = 107%)



The 5.5 kg of lean mass in right leg is 0.5 kg less based on the ideal weight of 55 kg when the height is 160 cm, but it is 107% of the lean mass to support current weight of 45 kg. In other words, it seems that there is insufficient lean mass due to the current weight but in fact, it is sufficient to support the current weight of 45 kg.

Overweight (Height 160 cm, weight 65 kg, lean mass of right leg 6.5 kg = 89%)



The 6.5 kg of lean mass in right leg is 0.5 kg more based on the ideal weight of 55 kg when the height is 160 cm, but it is 89% of the lean mass to support current weight of 65 kg. In other words, it seems that there is sufficient lean mass due to the current weight, but in fact, it is not sufficient to support the current weight of 65 kg.

*This is sample data for your understanding only.

2) Correct Interpretation of Segmental Lean Analysis

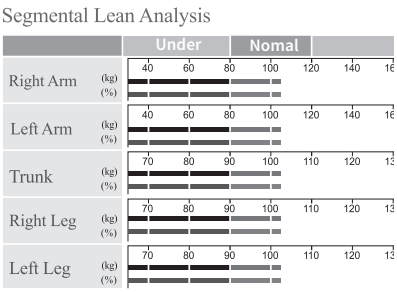
Step 1. Check the segmental lean balance.
Compare the length of the bars in the Segmental Lean Analysis to ensure that the lean mass distribution is well balanced.
Step 2. Monitor lean mass development.
Check if the lean mass is sufficiently developed by analyzing the length of the bottom bars.
Step 3. Check the relationship between the top and bottom bars.
Ensure that both the top and bottom bars are as close to or above the healthy average as possible.
Step 4. Monitor changes in the Segmental Lean Analysis.
Track any positive or negative changes in the segmental lean mass over time and identify trends to tailor your recommendations to individual goals.

Step 1. Check the segmental lean balance.

Compare the length of the bars in the Segmental Lean Analysis to determine if the lean mass is evenly distributed.

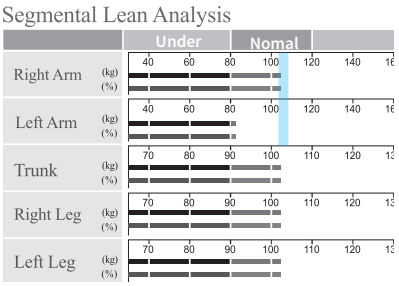
- **Monitor the balance of the upper, lower, left, and right sides of the body**

  The length of the bars between the upper and lower body are similar and the length of bars between the left and right arms and legs are similar :
  All segments of body are balanced.



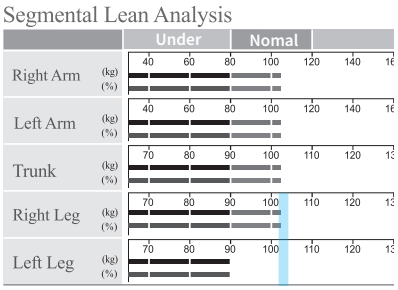
- **Imbalance in the upper body**

  The length of the bars between the right and left arms are different :
  The development of the arms is not symmetrical. If there is more lean mass in one arm than the other, then it may be attributed to activities that involve the use of one arm over the other (such as tennis). Injury can cause this kind of imbalance.



- **Imbalance in the lower body**

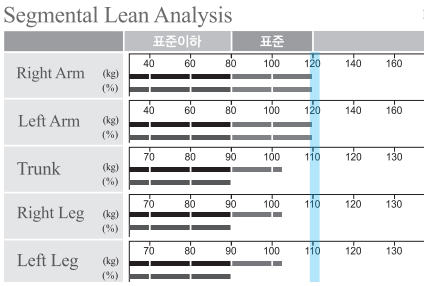
  The length of the bars between the right and left legs are different :
  Like the arms, the development of the legs is not symmetrical. If there is more lean mass in one leg than the other, then it may be attributed to activities that involve the use of one leg over the other (such as soccer) or injuries.



- **Upper and lower body imbalance - Developed upper body type**

  The bottom bars of the upper body are longer than those in the lower body and are within the normal range:

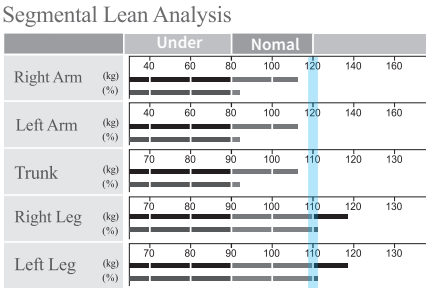
  The length of the bottom bars in the lower body is in the normal range, but there is a big difference between bars of the upper and lower body. So, this type is considered a "Developed upper body type"



- **Upper and lower body imbalance - Developed lower body type**

  The bottom bars of the lower body are longer than those in the upper body and are over the normal range:

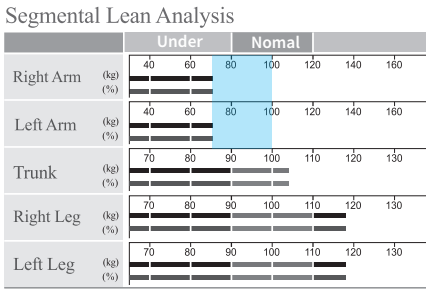
  The length of bottom bars in the upper body is in the normal range, but there is a big difference between bars of the upper and lower body. So, this type is considered "Developed lower body type"



- **Upper and lower body imbalance - Weak upper body type**

  The bottom bars of the lower body are longer then the upper body and are below the normal range:

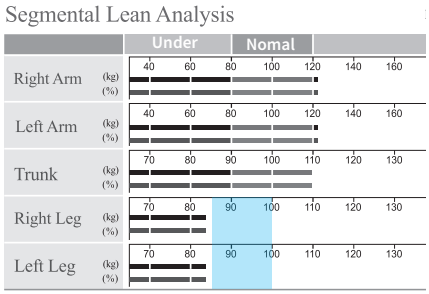
  The upper body is insufficiently developed, resulting in the imbalance between the upper and the lower body. So, this type is considered "Weak upper body type"



- **Upper and lower body imbalance - Weak lower body type**

  The bottom bars of the upper body are over the normal range but the lower body is below the normal range:

  This type of imbalance is caused by a weak lower body compared to the upper body. It is important to maintain the lean mass of the lower body to support the body weight. Insufficient lean mass in the lower body can also negatively affect bone health, correlated with arthritis, oseoporosis, and more. So, this type is considered "Weak lower body type"

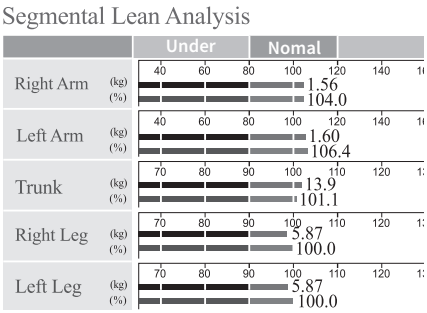


Step 2: Monitor muscle development.

Use the length of the bottom bars and percentage value to assess how much the segmental lean mass has developed.

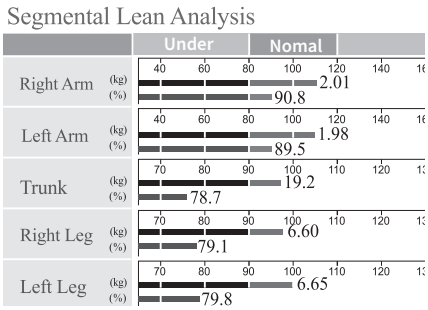
- **Normal lean mass (Balanced type) -160cm, 54kg, Female | Ideal Weight**

  The length of the top and bottom bars is similar and close to 100%. This body type has an ideal amount of lean mass compared to the ideal and current weight.



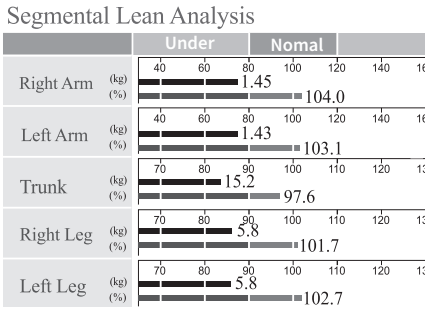
- **Insufficient lean mass (Weak type) - 165cm, 65kg, Female | Overweight**

  The top bars for both the upper and lower body are within the normal range.
  In this case, the current weight may be heavier than the ideal weight or the lean mass may be high. However, the bottom bar shows that the upper body is in the 90% range but the lower body is around the 79% range, which is under the normal range. Though it might seem like the lean mass is high, the bottom bar reveals that the current lean mass is insufficient to support the current weight.



- **Normal lean mass (Balanced type) - 162cm 45kg, Female | Underweight**

  The top bar is below the normal range for both the upper and lower body. The current weight may be less than the ideal weight or the lean mass itself may be less; however, the bottom bars are all above 100%. It may initially appear that the lean mass is low by looking at the top bars, but the bottom bars reveal that the current lean mass is sufficient to support the current weight.



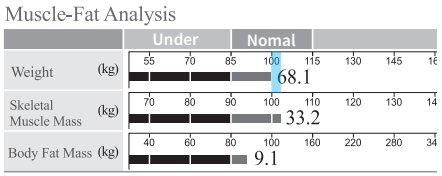
Step 3: Check the relationship between the upper and bottom bars.

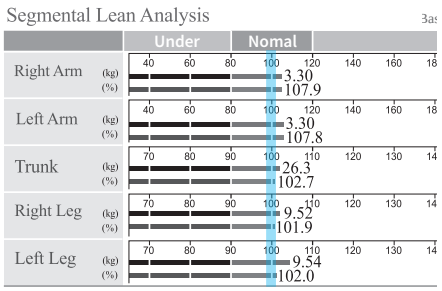
The upper bars in the Segmental Lean Analysis are based on the ideal weight for the height and the bottom bars are based on the current weight. Therefore, the length of the bars change based on the differences of the ideal weight and current weight of the subject.

· **When the current weight is similar to the ideal weight**

(Current weight ≒ Ideal weight)

: The length of the upper and bottom bars are similar.





Bottom bar graph is over 100%

Sufficient lean mass compared to the current weight.

175 cm, 68.1 kg, Age 28, Male

Current weight (68.1 kg) ≒ Ideal weight (67.4 kg)

The length of the two bar graphs is similar because the current weight is close to the ideal weight. The bottom bars of the upper and lower body are within the normal range, which indicates that there is enough lean mass.

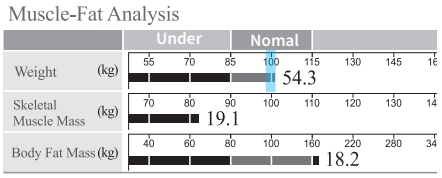
Bottom bar graph is below 100%

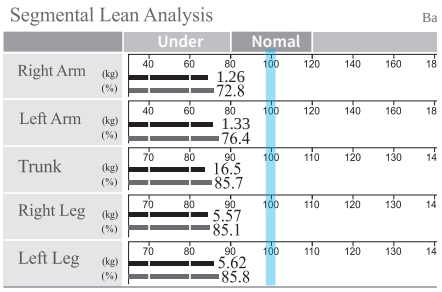
Insufficient lean mass compared to the current weight.

160 cm, 54.3 kg, Age 28, Female

Current weight (54.3 kg) ≒ Ideal weight (53.8 kg)

The length of the two bar graphs is similar because the current weight is close to the ideal weight. However, the bottom bars of the upper and lower body are under the normal range, which indicates that there is enough lean mass in the arms and legs.





· **Current weight is higher than the ideal weight**

(Current weight > Ideal weight):

: The bottom bar is shorter than the upper bar.

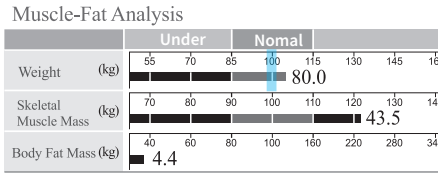
Bottom bar graph is over 100%

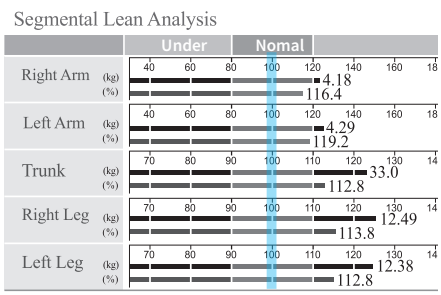
Sufficient lean mass compared to the current weight.

183 cm, 80 kg, age 23, Male

Current weight (80.0 kg) > Ideal weight(73.7 kg)

The bottom bar is shorter than the upper bar because the current weight is higher than the ideal weight. However, the bottom bars of the upper and lower body are over 100%, which indicates that there is a sufficient amount of lean mass.





Bottom bar graph is below 100%

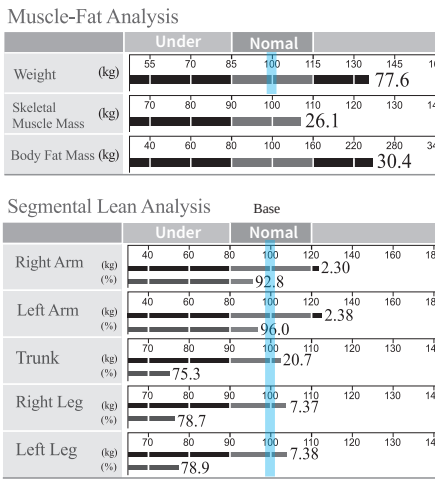
Insufficient lean mass compared to the current weight

165 cm, 77.6 kg, Age 27, Female

Current weight (77.6 kg) > Ideal weight(57.2 kg)

The bottom bars for the arms are over 90% while the bottom bars for both legs are 78%, which indicates insufficient lean mass in the legs to support the current weight.

* In general, if the bottom bar is in the normal range, it means that the lean mass is at an appropriate level. However, it needs to aim to be at or above 100% to for the longterm health and wellness.



- **Current weight is lower than the ideal weight (Current weight < Ideal weight)**

: The bottom bar is longer than the upper bar.

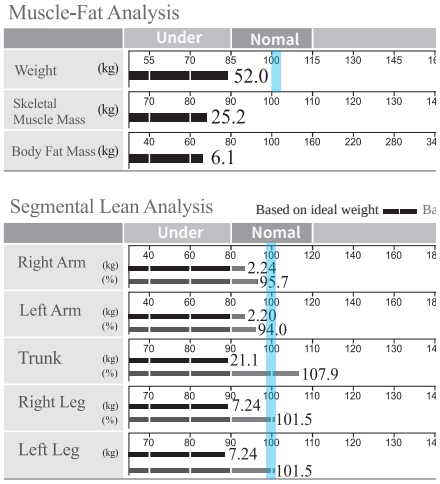
Bottom bar graph is over 100%

Sufficient lean mass compared to the current weight.

170 cm, 52 kg, Age 32, Male

Current weight (52.0 kg) < Ideal weight (63.6 kg)

The bottom bar is longer than the upper bar because the current weight is lower than the ideal weight. It looks there is less amount of lean mass in the legs, but the bottom bar is in the normal range, which indicates sufficient lean mass to support the current weight.



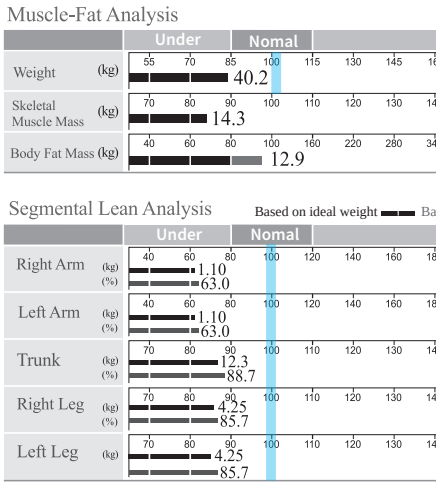
Bottom bar graph is below 100%

Insufficient lean mass compared to the current weight.

145 cm, 40.2 kg, Age 50, Female

Current weight (40.2 kg) < Ideal weight (44.2 kg)

The bottom bar is longer than the upper bar because the current weight is lower than the ideal weight. In this case, both the upper and bottom bar graphs are below 100%, which indicates less amount of lean mass in the all segments of body and insufficient to support the current weight.

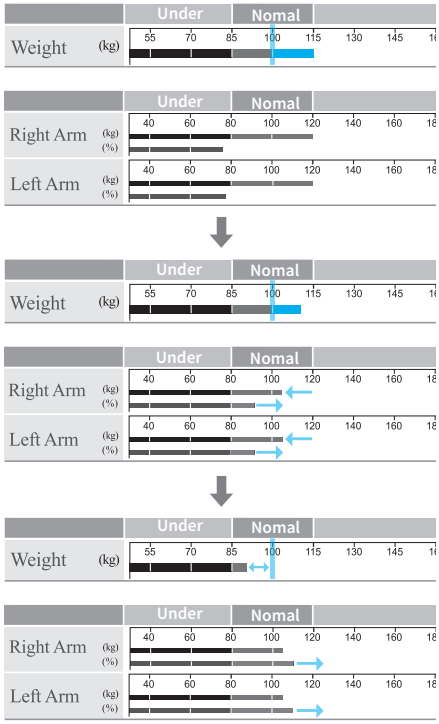


Step 4: Monitor changes in the Segmental Lean Analysis.

The InBody Test lets you monitor changes in segmental lean mass.

- **Overweight or skinny obese body type who wants to reduce fat mass.**

An obese body type subject with weight is over 100% and high fat mass.
In this case, it is desirable to mainly reduce body fat while maintaining lean mass.
Looking at the top bar graph, it may look like there are a lot of lean mass, but the bottom bar graph is much less than 100%.



After the treatment (1st)

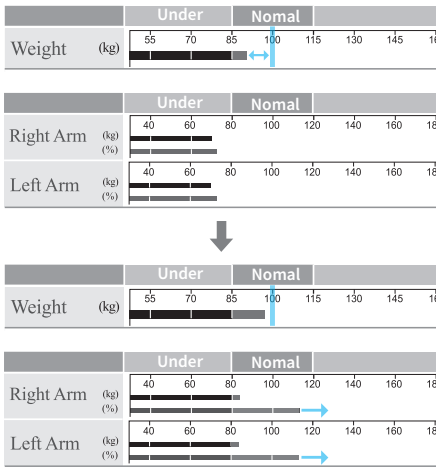
As you lose weight, you will lose fat as well as a small amount of lean mass. As a result, the top bar is also slightly shortened. However, if you look at the bottom bar graph, you can see that it is longer than before.

After the treatment (2nd)

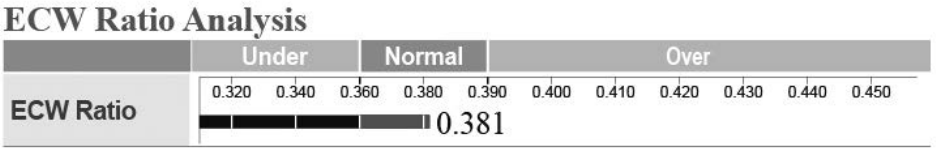
As you lose more weight, you will probably lose some body fat and a small amount of lean mass. At the same time as the top bar graph is slightly shortened, the bottom bar graph will be closer to 100% or longer as a result of weight loss while maintaining adequate lean mass.

- **Weak body type who wants to increase lean mass.**

A normal body type subject whose weight is below 100% with low lean mass.
Looking at the upper bar, there is a insufficient amount of lean mass, but the bottom bar is below 100%, which reveals that there is insufficient lean mass to the current weight. To improve this body composition, increase lean mass and body weight.



6. ECW Ratio Analysis



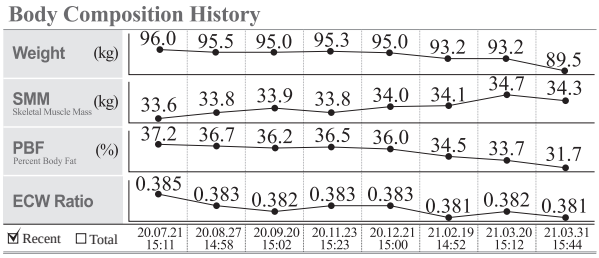
ECW Ratio shows the balance of body water. In healthy population, the ratio of Intracellular Water (ICW) to Extracellular Water (ECW) is approximately 3:2. When this ratio becomes unbalanced, a condition called edema occurs.

$$\text{ECW Ratio} = \frac{\text{Extracellular Water}}{\text{Total Body Water}}$$

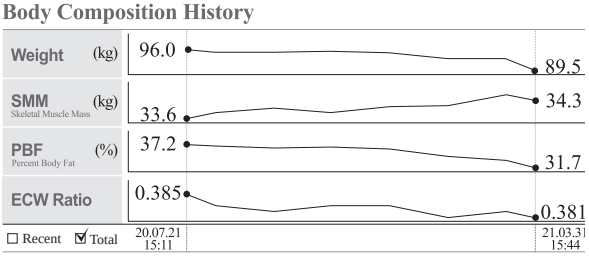
The normal range of ECW Ratio is 0.360 ~0.390. The InBody precisely detects changes in body water because it measures the Intracellular Water and Extracellular Water separately.

7. Body Composition History

You can monitor changes in Weight, Skeletal Muscle Mass, Percent Body Fat, and ECW Ratio with Body Composition History. Taking regular InBody Test and monitoring changes in body composition is the first step toward a healthier life.



Recent test results displayed in Body Composition History

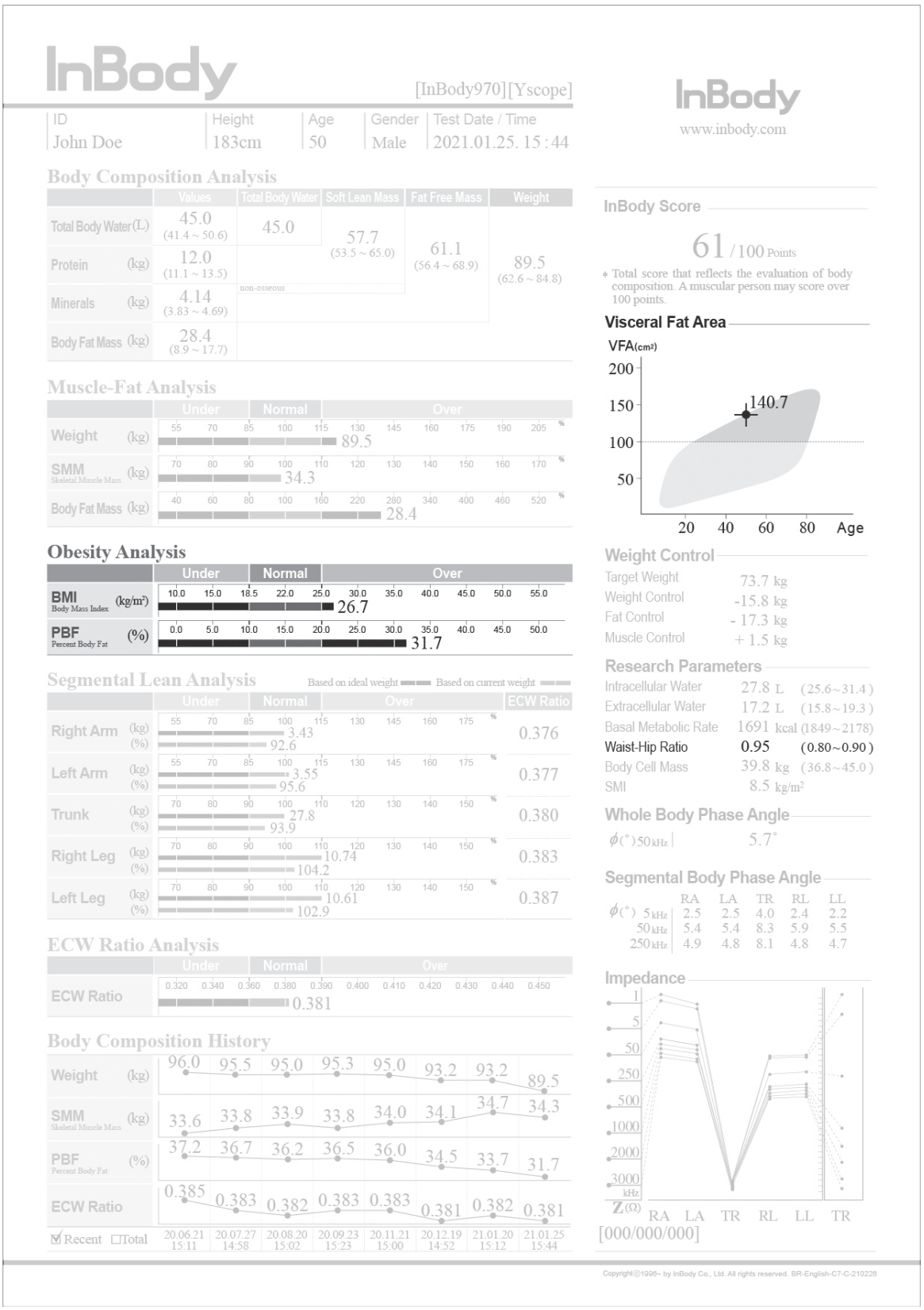


Total test results displayed in Body Composition History

* Check VIII. Additional Parameters for an explanation of each parameter shown on the right side of Result Sheet.

B. Result Sheet Consultation Guide

1. Obesity Analysis + Visceral Fat Area + Waist-Hip Ratio



InBody evaluates obesity using four metrics

1 : Obesity Analysis from Appearance

Use the BMI (kg/m²) to assess the weight according to the height.

2 : Actual Obesity

Use the Percent Body Fat to evaluate the ratio of the body fat mass to the weight.

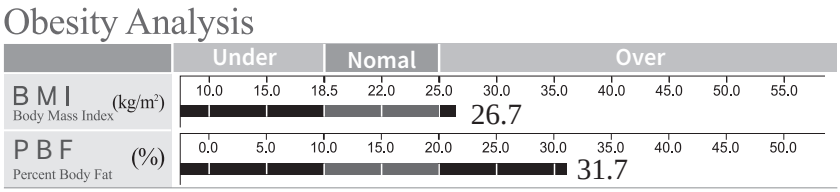
3 : Abdominal Obesity

Use the Waist-Hip Ratio, which is the waist circumference divided by hip circumference, to assess abdominal obesity.

4 : Abdominal Obesity

Use the Visceral Fat Level (VFL) or Visceral Fat Area (VFA) to evaluate visceral fat obesity.

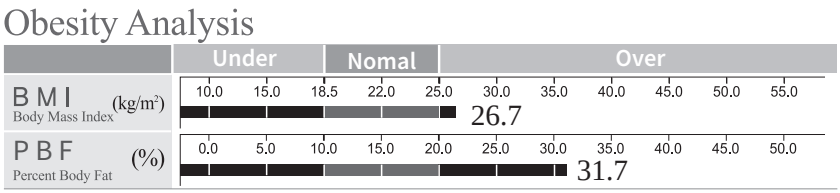
■ Abdominal Fat - Visceral Fat type



Waist-Hip Ratio	0.95	(0.80 ~ 0.90)
Visceral Fat Level	14	(1 ~ 9)

Visceral Fat, which is closely linked to lifestyle and cardiovascular diseases, is considered dangerous if the value is over 10 or 100cm². In the example above, the subject has a Visceral Fat Level of 14. It is recommended that the subject reduce the alcohol and greasy foods, have a regular diet, and do aerobic exercise regularly.

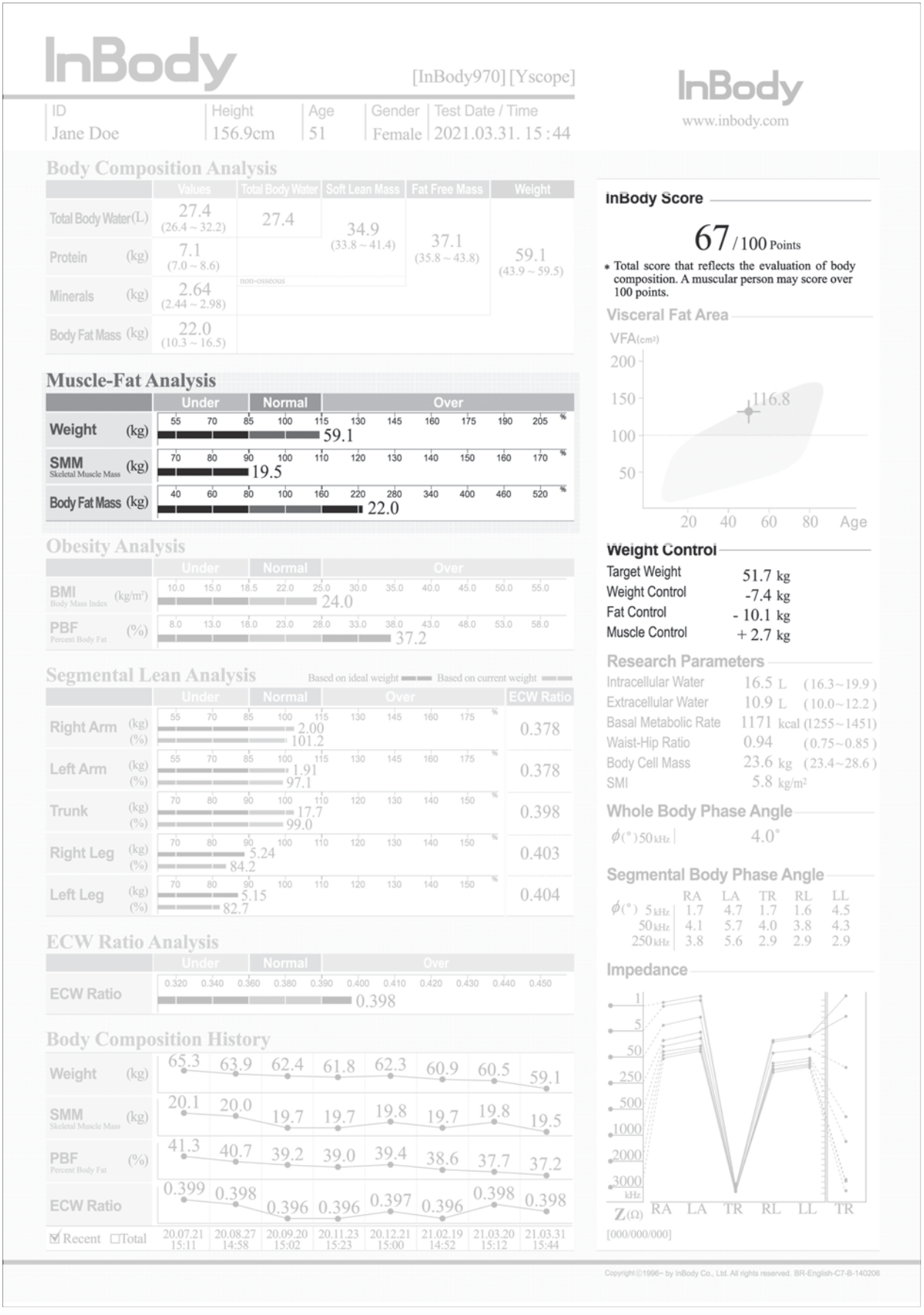
■ Abdominal Fat - Subcutaneous Fat type



Waist-Hip Ratio	0.95	(0.80 ~ 0.90)
Visceral Fat Level	6	(1 ~ 9)

The Waist-Hip Ratio is high, but the Visceral Fat Level is 6, which means that this subject may have a lot of subcutaneous abdominal fat. It is recommended that the subject eat a balanced, nutritious diet and exercise regularly to avoid a sedentary lifestyle. It is difficult to reduce subcutaneous fat in a short-term, so the focus should be on long-term abdominal fat loss.

2. Muscle-Fat Analysis + InBody Score + Weight Control



InBody

[InBody970] [Yscope]

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 :44

InBody
www.inbody.com

Body Composition Analysis

	Values	Total Body Water	Soft Lean Mass	Fat Free Mass	Weight
Total Body Water (L)	27.4 (26.4 ~ 32.2)	27.4	34.9 (33.8 ~ 41.4)	37.1 (35.8 ~ 43.8)	59.1 (43.9 ~ 59.5)
Protein (kg)	7.1 (7.0 ~ 8.6)				
Minerals (kg)	2.64 (2.44 ~ 2.98)	non-osseous			
Body Fat Mass (kg)	22.0 (10.3 ~ 16.5)				

Muscle-Fat Analysis

	Under	Normal	Over
Weight (kg)		59.1	
SMM Skeletal Muscle Mass (kg)		19.5	
Body Fat Mass (kg)		22.0	

Obesity Analysis

	Under	Normal	Over
BMI Body Mass Index (kg/m²)		24.0	
PBF Percent Body Fat (%)		37.2	

Segmental Lean Analysis — Based on ideal weight / Based on current weight

	Under	Normal	Over	ECW Ratio
Right Arm (kg) / (%)		2.00 / 101.2		0.378
Left Arm (kg) / (%)		1.91 / 97.1		0.378
Trunk (kg) / (%)		17.7 / 99.0		0.398
Right Leg (kg) / (%)		5.24 / 84.2		0.403
Left Leg (kg) / (%)		5.15 / 82.7		0.404

ECW Ratio Analysis

	Under	Normal	Over
ECW Ratio		0.398	

Body Composition History

	20.07.21 15:11	20.08.27 14:58	20.09.20 15:02	20.11.23 15:23	20.12.21 15:00	21.02.19 14:52	21.03.20 15:12	21.03.31 15:44
Weight (kg)	65.3	63.9	62.4	61.8	62.3	60.9	60.5	59.1
SMM Skeletal Muscle Mass (kg)	20.1	20.0	19.7	19.7	19.8	19.7	19.8	19.5
PBF Percent Body Fat (%)	41.3	40.7	39.2	39.0	39.4	38.6	37.7	37.2
ECW Ratio	0.399	0.398	0.396	0.396	0.397	0.396	0.398	0.398

☑ Recent ☐ Total

InBody Score

67 / 100 Points

* Total score that reflects the evaluation of body composition. A muscular person may score over 100 points.

Visceral Fat Area

VFA(cm²) — 116.8 — Age

Weight Control

Target Weight	51.7 kg
Weight Control	-7.4 kg
Fat Control	- 10.1 kg
Muscle Control	+ 2.7 kg

Research Parameters

Intracellular Water	16.5 L	(16.3~19.9)
Extracellular Water	10.9 L	(10.0~12.2)
Basal Metabolic Rate	1171 kcal	(1255~1451)
Waist-Hip Ratio	0.94	(0.75~0.85)
Body Cell Mass	23.6 kg	(23.4~28.6)
SMI	5.8 kg/m²	

Whole Body Phase Angle

φ(°) 50kHz | 4.0°

Segmental Body Phase Angle

	RA	LA	TR	RL	LL
φ(°) 5kHz	1.7	4.7	1.7	1.6	4.5
50kHz	4.1	5.7	4.0	3.8	4.3
250kHz	3.8	5.6	2.9	2.9	2.9

Impedance

RA LA TR RL LL TR — Z(Ω) — [000/000/000]

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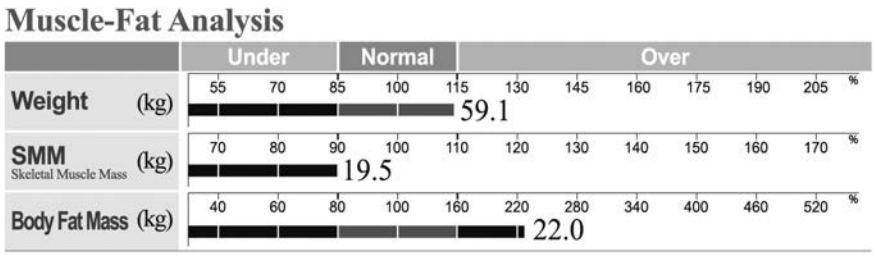
InBody evaluates body composition status using three metrics.

1 : Evaluate the ratio of Skeletal Muscle Mass to Body Fat Mass using the graph

2 : Check the target weight using the Weight Control

3 : Evaluate the current health status using the InBody Score



InBody Score

61 / 100 Points

* Total score that reflects the evaluation of body composition. A muscular person may score over 100 points.

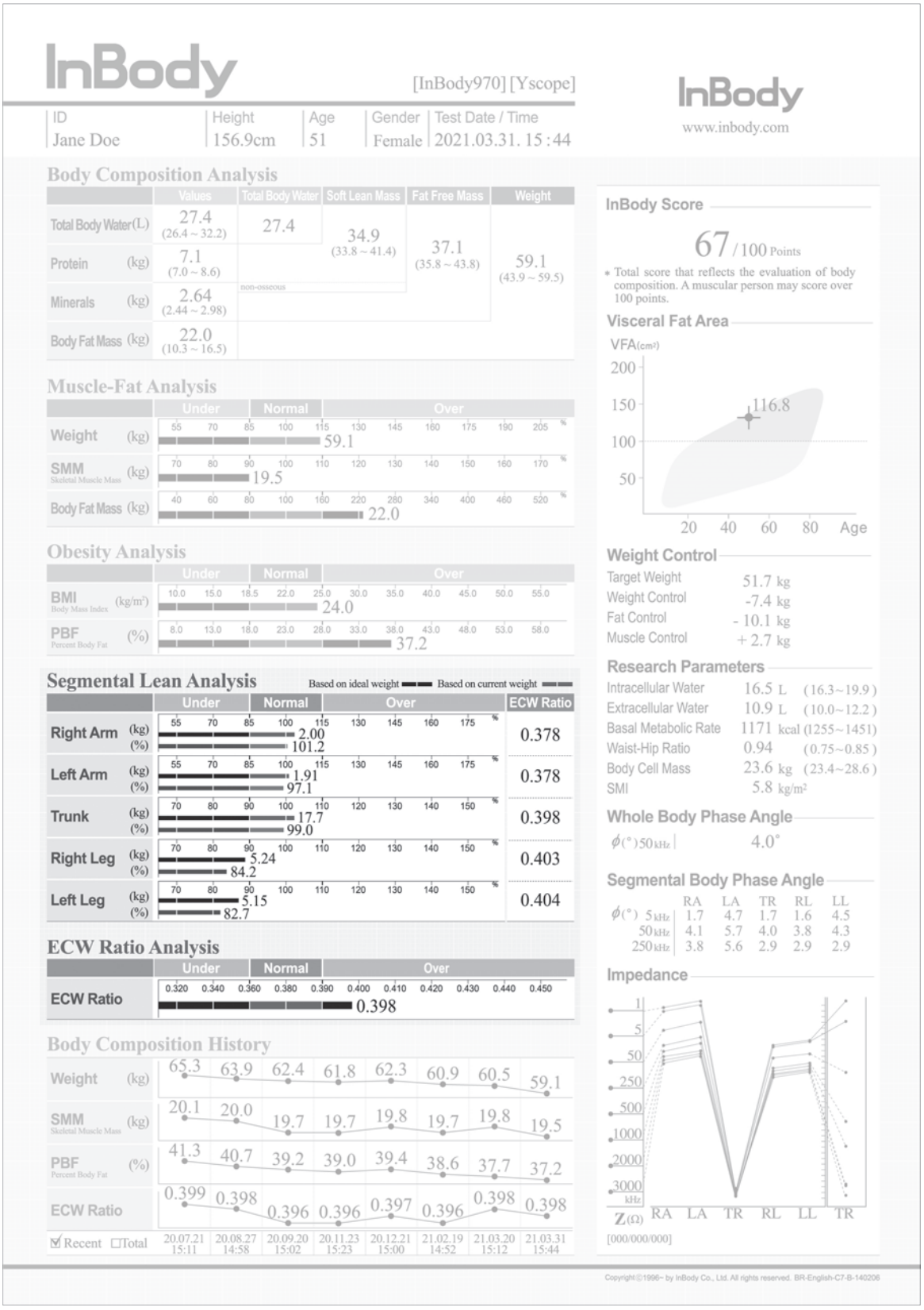
Weight Control

Target Weight	73.7 kg
Weight Control	-15.8 kg
Fat Control	- 17.3 kg
Muscle Control	+ 1.5 kg

Connect the end of the bars for Weight, SMM, and Body Fat Mass to understand the balance of muscle and fat in the weight. If the length of SMM is shorter than the Weight or Body Fat Mass, it is necessary to the Muscle Mass to make the length of all three graphs similar to one another. Check the Weight Control to understand which body composition parameter needs to be managed, and use the InBody Score to assess the health status.

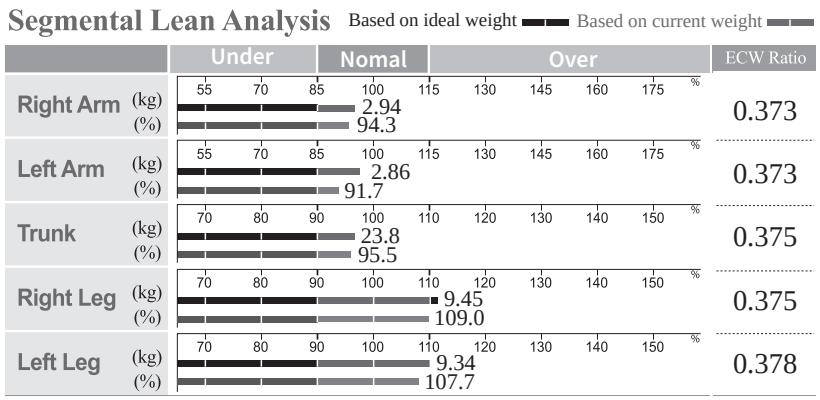
*Target Weight is not based on the height and ideal weight, but on a balanced body composition to maintain a healthy weight.

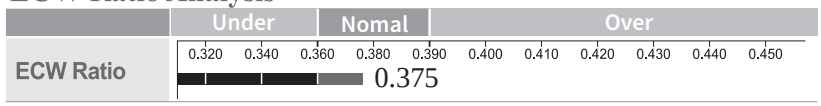
3. Segmental Lean Analysis + ECW Ratio Analysis



The InBody can detect the overestimation of muscle by analyzing Segmental Lean Mass & ECW Ratio.

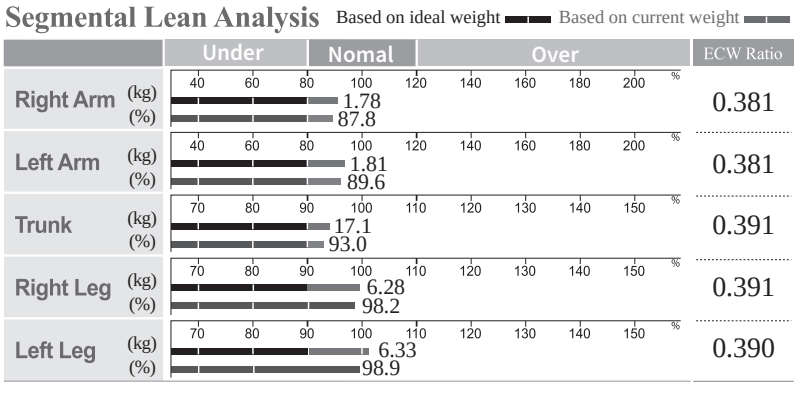
Normal individuals

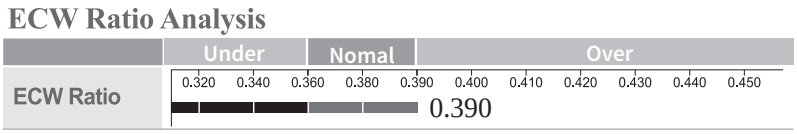




Since the ECW Ratio of each segments are within the normal range, it could be said that each segment has a well-developed lean mass.

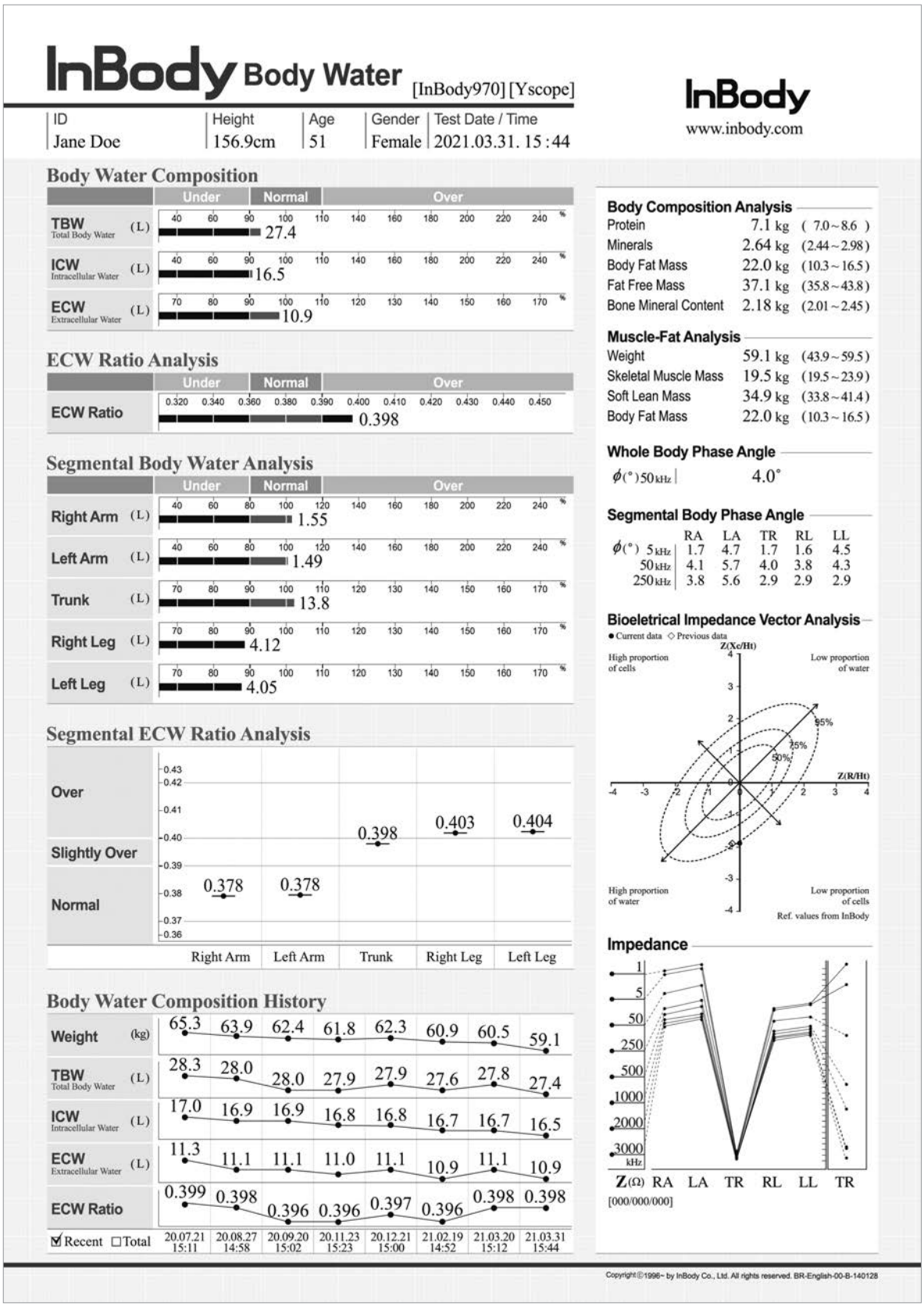
In the case of overestimation





In general, patients with abnormal kidney function tend to have high ECW Ratio. However, skinny women, the elderly, or obese patients may have high ECW Ratio even without a specific disease. This is because there is a relative increase in extracellular water due to nutritional problems or lack of muscle. If you look at the above results, both the top and bottom bar graphs are within the normal or over the normal range. Also, if you look at the Segmental Lean Analysis, you can think of a subject with well-developed lean mass in each segment. However, the high ECW Ratio indicates that this subject's lean mass is overestimated due to edema.

II. Body Water Result Sheet



InBody Body Water [InBody970] [Yscope]

InBody
www.inbody.com

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 :44

Body Water Composition

	Under	Normal	Over
TBW Total Body Water (L)		27.4	
ICW Intracellular Water (L)		16.5	
ECW Extracellular Water (L)		10.9	

ECW Ratio Analysis

	Under	Normal	Over
ECW Ratio		0.398	

Segmental Body Water Analysis

	Under	Normal	Over
Right Arm (L)		1.55	
Left Arm (L)		1.49	
Trunk (L)		13.8	
Right Leg (L)		4.12	
Left Leg (L)		4.05	

Segmental ECW Ratio Analysis

	Right Arm	Left Arm	Trunk	Right Leg	Left Leg
Over			0.398	0.403	0.404
Slightly Over					
Normal	0.378	0.378			

Body Water Composition History

	20.07.21 15:11	20.08.27 14:58	20.09.20 15:02	20.11.23 15:23	20.12.21 15:00	21.02.19 14:52	21.03.20 15:12	21.03.31 15:44
Weight (kg)	65.3	63.9	62.4	61.8	62.3	60.9	60.5	59.1
TBW Total Body Water (L)	28.3	28.0	28.0	27.9	27.9	27.6	27.8	27.4
ICW Intracellular Water (L)	17.0	16.9	16.9	16.8	16.8	16.7	16.7	16.5
ECW Extracellular Water (L)	11.3	11.1	11.1	11.0	11.1	10.9	11.1	10.9
ECW Ratio	0.399	0.398	0.396	0.396	0.397	0.396	0.398	0.398

☑ Recent ☐ Total

Body Composition Analysis

Protein	7.1 kg	(7.0 ~ 8.6)
Minerals	2.64 kg	(2.44 ~ 2.98)
Body Fat Mass	22.0 kg	(10.3 ~ 16.5)
Fat Free Mass	37.1 kg	(35.8 ~ 43.8)
Bone Mineral Content	2.18 kg	(2.01 ~ 2.45)

Muscle-Fat Analysis

Weight	59.1 kg	(43.9 ~ 59.5)
Skeletal Muscle Mass	19.5 kg	(19.5 ~ 23.9)
Soft Lean Mass	34.9 kg	(33.8 ~ 41.4)
Body Fat Mass	22.0 kg	(10.3 ~ 16.5)

Whole Body Phase Angle

ϕ(°) 50kHz | 4.0°

Segmental Body Phase Angle

	RA	LA	TR	RL	LL
ϕ(°) 5kHz	1.7	4.7	1.7	1.6	4.5
50kHz	4.1	5.7	4.0	3.8	4.3
250kHz	3.8	5.6	2.9	2.9	2.9

Bioeletrical Impedance Vector Analysis

● Current data ◇ Previous data

Z(Xc/Ht) Z(R/Ht) High proportion of cells Low proportion of water High proportion of water Low proportion of cells 95% 75% 50%

Ref. values from InBody

Impedance

1 5 50 250 500 1000 2000 3000 kHz

Z(Ω) RA LA TR RL LL TR

[000/000/000]

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A. Description of Result Sheet Parameters

1. Customer Information and Logo

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 :44

InBody
www.inbody.com

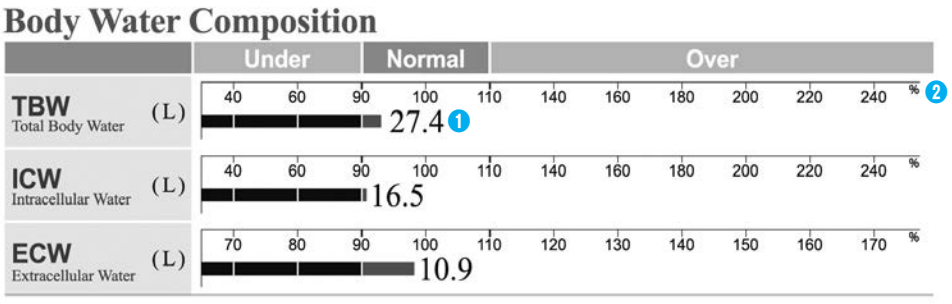
Information such as ID, Height, Age, Gender, and Test Date/Time is displayed at the top of the result sheet. Additionally, there is a designated space for a company logo.

1) You can input an ID using the keypad or touchscreen.
   The ID can use a combination of letters and numbers up to a maximum of 14 characters.
2) You can also input height, age, and gender using the keypad or touchscreen.
3) You can input a logo using a software provided by InBody. You can also input your business information such as the name, phone number, and address.

* Please contact Customer Service to change the logo.

2. Body Water Composition

Body water comprises the biggest part of body composition. It is distributed in all the cells and fluids of the body, which explains why 50~70% of the body is made up of water. Maintaining balanced body water is important for optimal health. Losing a little bit of body fat or protein has a negligible effect on long-term health, but a 10% loss of body water has an immediate negative impact on the body, and loss of more body water may lead to death. Most of body water is stored in what we call fat free mass. The amount of fat free mass an individual has depends on factors like their age and gender. For example, younger people tend to have a larger amount of body water that gradually decreases with age. Additionally, men tend to have more body water than women. In athletes with very low body fat, 70% of their body is made up of water. On the other hand, obese people with high body fat have about 50% of body water. Most of body water is in the cells, with the remainder in the blood and interstitial fluid. The water inside the cell membrane is called the Intracellular Water, and the water in the blood and interstitial fluid is called the Extracellular Water.



Interpretation

❶ Total Body Water (TBW), Intracellular Water (ICW), and Extracellular Water (ECW) are shown in liters (L).
❷ The length of bars of TBW, ICW, ECW are displayed based on the ideal weight.

1) Total Body Water (TBW)

TBW is the sum of the Intracellular Water (ICW) and Extracellular Water (ECW) in the body.

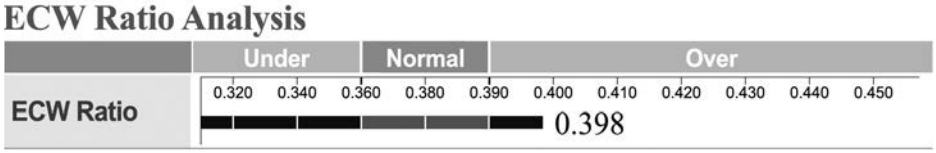
2) Intracellular Water (ICW)

ICW is the body water located in the cell membrane. The number of cells directly affects the amount of intracellular water. Therefore, an increase in intracellular water indicates an increase body cell mass as well as fat free mass.
In general, intracellular water accounts for about 62% of the total body water in a healthy subject.

3) Extracellular Water (ECW)

ECW is the body water that is located outside the cell membrane. It includes all types of water outside the cell, including interstitial fluid between the cells and water in the plasma. In general, extracellular water comprises about 38% of total body water, but fatigue and diseases can cause an imbalance of the ECW Ratio, resulting in a condition called edema.

3. ECW Ratio Analysis



The Extracellular Water Ratio (ECW Ratio) is an indicator of the body water balance. In healthy subject, the ratio of intracellular water (ICW) to extracellular water (ECW) is constant about at 3:2, and if this ratio is broken, edema may appear.

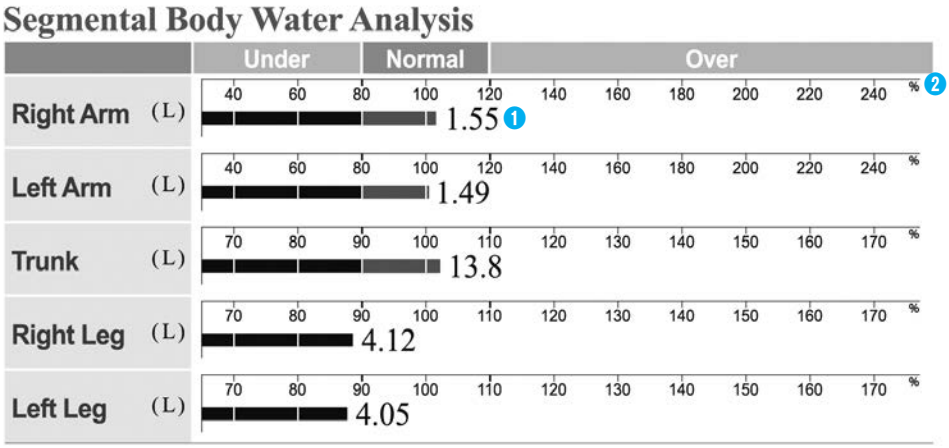
$$\text{ECW Ratio} = \frac{\text{Extracellular Water}}{\text{Total Body Water}}$$

A normal range for the ECW Ratio is 0.360~0.390. Since the InBody measures ICW and ECW separately, it can precisely detect even the smallest changes in body water balance.

4. Segmental Body Water Analysis

This helps to understand the water balance by analyzing the total body water in each part of the body. The amount of body water in the arms, trunk, and legs are shown in the graph.

Muscles are like storage for body water, so changes of body water result in changes of muscle mass. For people with diseases who cannot maintain a consistent body water balance, body water could increase and muscle may be overestimated even if there is not much muscle mass. In this case, the Segmental ECW Ratio needs to be checked where the Segmental Body Water is high.

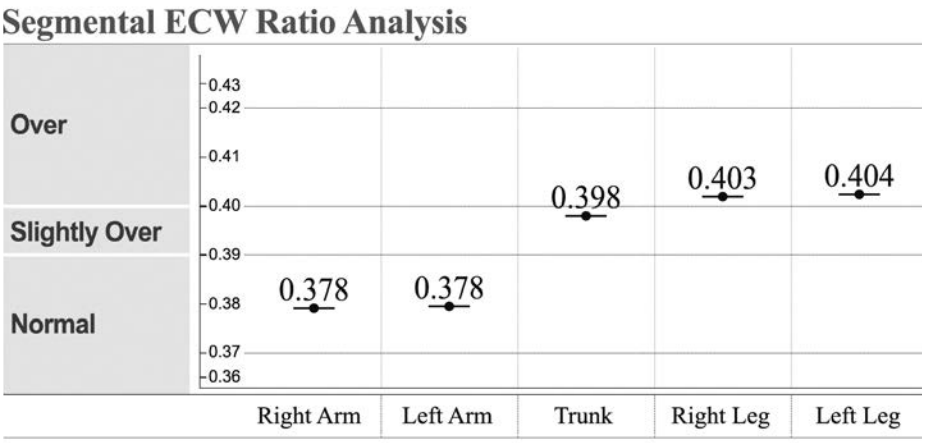


Interpretation

❶ The amount of body water in each segments is displayed in liters (L)

❷ The length of bars of body water in each segments are displayed based on the ideal weight.

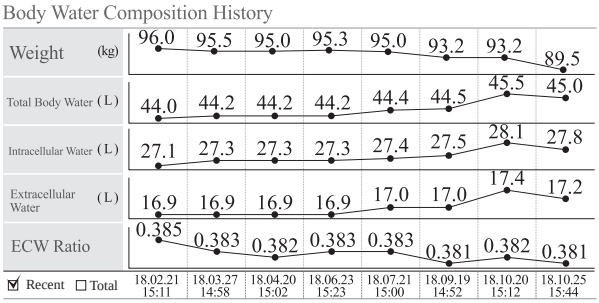
5. Segmental ECW Ratio Analysis



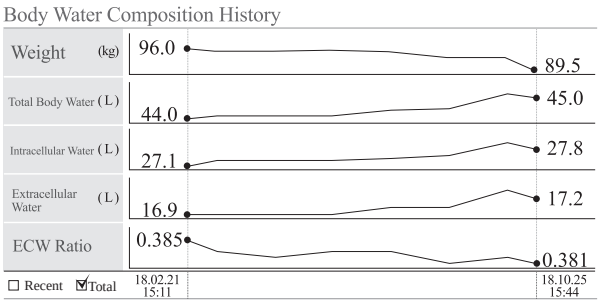
Segmental ECW Ratio is displayed in a graph so you can easily check which of the five body segments has a high ECW Ratio.

6. Body Water Composition History

You can monitor changes in Weight, TBW, ICW, ECW, and ECW Ratio with Body Water Composition History. Taking regular InBody Test and monitoring changes in body water is the first step toward a healthier life.



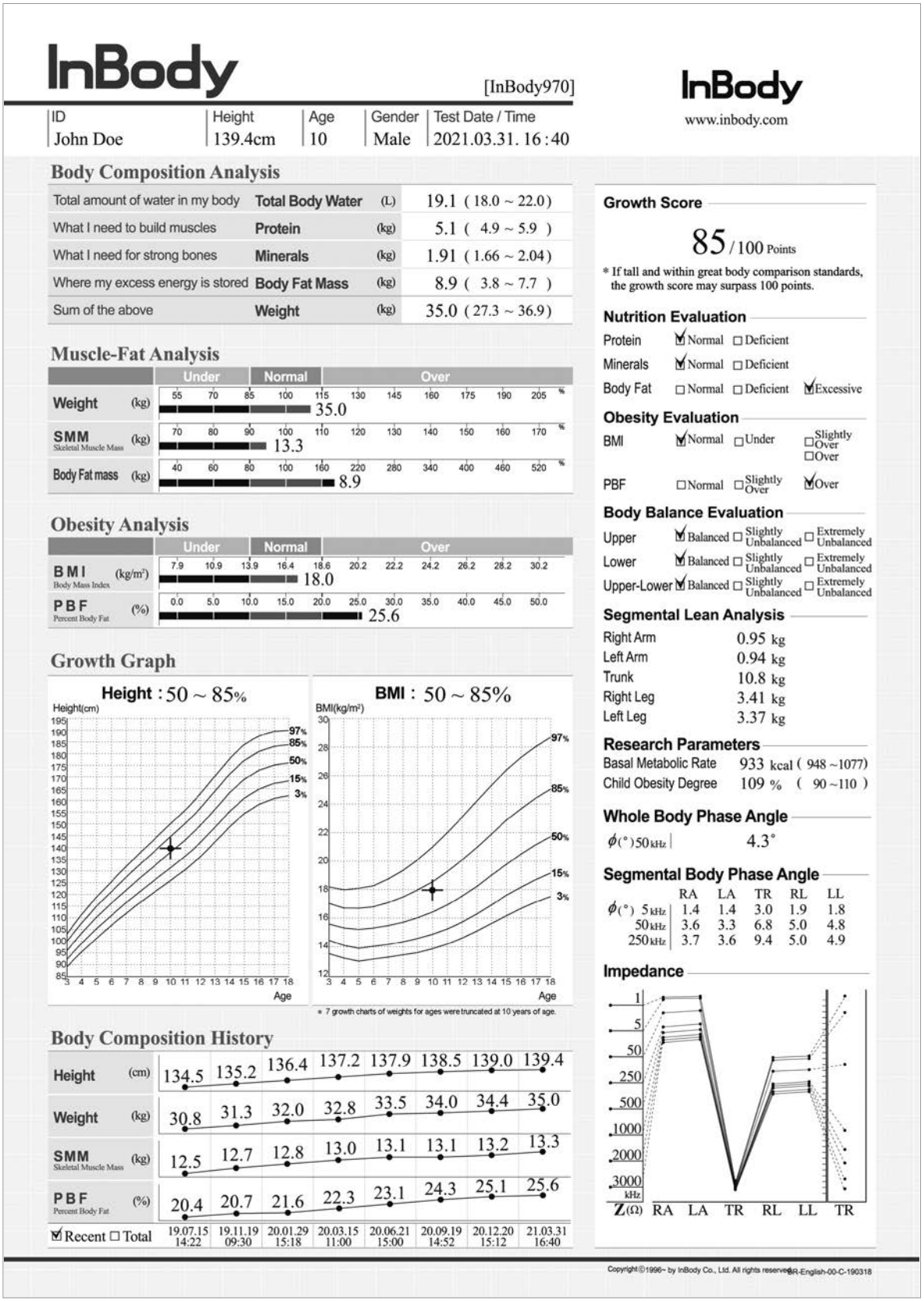
Recently accumulated results



Total accumulated results

* Check VIII. Additional Parameters for an explanation of each parameter shown on the right side of Result Sheet.

III . Body Composition Result Sheet for Children



InBody [InBody970]

InBody
www.inbody.com

ID	Height	Age	Gender	Test Date / Time
John Doe	139.4cm	10	Male	2021.03.31. 16:40

Body Composition Analysis

Total amount of water in my body	Total Body Water	(L)	19.1 (18.0 ~ 22.0)
What I need to build muscles	Protein	(kg)	5.1 (4.9 ~ 5.9)
What I need for strong bones	Minerals	(kg)	1.91 (1.66 ~ 2.04)
Where my excess energy is stored	Body Fat Mass	(kg)	8.9 (3.8 ~ 7.7)
Sum of the above	Weight	(kg)	35.0 (27.3 ~ 36.9)

Muscle-Fat Analysis

	Under	Normal	Over
Weight (kg)	55 70 85 100 115 130 145 160 175 190 205 %	35.0	
SMM Skeletal Muscle Mass (kg)	70 80 90 100 110 120 130 140 150 160 170 %	13.3	
Body Fat mass (kg)	40 60 80 100 160 220 280 340 400 460 520 %	8.9	

Obesity Analysis

	Under	Normal	Over
BMI Body Mass Index (kg/m²)	7.9 10.9 13.9 16.4 18.6 20.2 22.2 24.2 26.2 28.2 30.2	18.0	
PBF Percent Body Fat (%)	0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0	25.6	

Growth Graph

Height : 50 ~ 85%

BMI : 50 ~ 85%

* 7 growth charts of weights for ages were truncated at 10 years of age.

Body Composition History

Height (cm)	134.5	135.2	136.4	137.2	137.9	138.5	139.0	139.4
Weight (kg)	30.8	31.3	32.0	32.8	33.5	34.0	34.4	35.0
SMM Skeletal Muscle Mass (kg)	12.5	12.7	12.8	13.0	13.1	13.1	13.2	13.3
PBF Percent Body Fat (%)	20.4	20.7	21.6	22.3	23.1	24.3	25.1	25.6
☑ Recent ☐ Total	19.07.15 14:22	19.11.19 09:30	20.01.29 15:18	20.03.15 11:00	20.06.21 15:00	20.09.19 14:52	20.12.20 15:12	21.03.31 16:40

Growth Score

85 / 100 Points

* If tall and within great body comparison standards, the growth score may surpass 100 points.

Nutrition Evaluation

Protein	☑ Normal	☐ Deficient	
Minerals	☑ Normal	☐ Deficient	
Body Fat	☐ Normal	☐ Deficient	☑ Excessive

Obesity Evaluation

BMI	☑ Normal	☐ Under	☐ Slightly Over ☐ Over
PBF	☐ Normal	☐ Slightly Over	☑ Over

Body Balance Evaluation

Upper	☑ Balanced	☐ Slightly Unbalanced	☐ Extremely Unbalanced
Lower	☑ Balanced	☐ Slightly Unbalanced	☐ Extremely Unbalanced
Upper-Lower	☑ Balanced	☐ Slightly Unbalanced	☐ Extremely Unbalanced

Segmental Lean Analysis

Right Arm	0.95 kg
Left Arm	0.94 kg
Trunk	10.8 kg
Right Leg	3.41 kg
Left Leg	3.37 kg

Research Parameters

Basal Metabolic Rate	933 kcal	(948 ~1077)
Child Obesity Degree	109 %	(90 ~110)

Whole Body Phase Angle

ϕ(°) 50kHz 4.3°

Segmental Body Phase Angle

	RA	LA	TR	RL	LL
ϕ(°) 5kHz	1.4	1.4	3.0	1.9	1.8
50kHz	3.6	3.3	6.8	5.0	4.8
250kHz	3.7	3.6	9.4	5.0	4.9

Impedance

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A. Description of Result Sheet Parameters

1. Customer Information and Logo

ID	Height	Age	Gender	Test Date / Time
John Doe	139.4cm	10	Male	2021.03.31. 16 : 40

InBody
www.inbody.com

Information such as ID, Height, Age, Gender, and Test Date/Time is displayed at the top of the result sheet.
Additionally, there is a designated space for a company logo.

1) You can input an ID using the keypad or touchscreen.
   The ID can use a combination of letters and numbers up to a maximum of 14 characters.
2) You can also input height, age, and gender using the keypad or touchscreen.
3) You can input a logo using a software provided by InBody.
   You can also input your business information such as the name, phone number, and address
   * Please contact Customer Service to change the logo.

2. Body Composition Analysis

Body composition is a method of describing what the body is made of. There are many ways to break down body composition as shown below. InBody uses the Molecular Assessment to analyzer and quantitatively divide body composition into four different components: Body Water, Protein, Minerals, and Fat.

Body Composition Analysis

Total amount of water in my body	**Total Body Water** ❶ (L)	19.1	(18.0 ~ 22.0)
What I need to build muscles	**Protein** ❷ (kg)	5.1	(4.9 ~ 5.9)
What I need for strong bones	**Minerals** ❸ (kg)	1.91	(1.66 ~ 2.04)
Where my excess energy is stored	**Body Fat Mass** ❹ (kg)	8.9	(3.8 ~ 7.7)
Sum of the above	**Weight** (kg)	35.0	(27.3 ~ 36.9)

(1) Total Body Water

What is body water?

Body water comprises the biggest part of body composition. It is distributed in all the cells and fluids of the body, which explains why 50~70% of the body is made up of water. Maintaining balanced body water is important for optimal health. Losing a little bit of body fat or protein has a negligible effect on long-term health, but a 10% loss of body water has an immediate negative impact on the body, and loss of more body water may lead to death. Most of body water is stored in what we call fat free mass. The amount of fat free mass an individual has depends on factors like their age and gender. For example, younger people tend to have a larger amount of body water that gradually decreases with age. Additionally, men tend to have more body water than women. In athletes with very low body fat, 70% of their body is made up of water. On the other hand, obese people with high body fat have about 50% of body water. Most of body water is in the cells, with the remainder in the blood and interstitial fluid. The water inside the cell membrane is called the Intracellular Water, and the water in the blood and interstitial fluid is called the Extracellular Water.

Role of Body Water

Body water helps regulate body temperature and transports nutrients and wastes.
In addition, body water plays a vital role as a transportation channel, and medium for various chemical reactions.

Body Water and Health

The body must maintain a certain amount of water. The brain, in particular, contains more water than other tissues in the body, so it is very important to supply it with enough water to function properly. Average adults discharge about 2.5 liters of water through breathing, sweating, urine, and feces per day, so you need to consume at least that much water every day. Fat free mass, all of your body components except for fat, is composed of body water and protein. About 73% of fat free mass is made up of water, and muscle takes up a lot of fat free mass. Therefore, the more muscle mass you have, the more body water you will also have.

(2)Protein

What is Protein?

Protein is an organic complex that contains nitrogen and comprises 12 to 15% of the body composition. It is component of muscles, skin, bones, teeth, hair, blood, and the immune system. Unlike carbohydrates and fats, protein contains nitrogen, so its unique functions in the body cannot be replaced by other nutrients.

Role of the Protein

The main role of protein is to supply the essential nitrogen compounds that the body needs to grow and stay healthy. Protein in the body along with fat is an important component of the cell membrane as well as the inside of cell. It synthesizes enzymes, antibodies, and hormones, transports and stores essential substances in the body, and maintains body fluid and acid-base balance. Protein is also used as an energy source and synthesizes glucose when needed. When energy sources such as carbohydrates are not ingested, proteins are converted into glucose and used to provide energy. For this reason, protein is often used as an indicator of nutritional evaluation.

Protein and Health

Protein deficiency

Protein deficiency often leads to energy deficiency, inhibited growth, and lowered immunity. Symptoms such as edema, anemia, fatigue, decreased basal metabolism, skin pigmentation disorders, and fatty liver may also occur due to protein deficiency. In nutritional deficiency, protein is broken down and used as fuel to supply energy, resulting in severe weight loss in the case of cancer patients, people with chronic illnesses, and the elderly. When you are on a weight loss diet and if you do not consume enough protein, muscle loss will occur. To prevent this, it is important to do exercise and eat a nutritionally balanced diet, or you will lose muscle rather than fat, which is unhealthy weight loss. In general, your muscle mass and metabolic capacity decrease with age, so even if you eat the same amount of food, your body fat can increase. Thus, it is recommended to maintain or increase muscle mass through regular exercise.

* At InBody, a lack of protein means that there is an insufficient amount of proteins that comprise muscle mass rather than inadequate protein consumption.

(3) Minerals

What are Minerals?

Minerals refer to the total amount of inorganic components dissolved in bones and body water and comprise 5% to 6% of the body composition. Generally, it describes the amount of bone and teeth, except for small amounts of ionic components dissolved in body water. Minerals are not an energy source, but they are essential nutrients for sustaining life and maintaining optimal health. The body needs 14 different types of minerals to grow and maintain good health.

Role of Minerals

Minerals are key components of several substances in the body and regulate many essential functions and processes. Minerals are involved in the formation of skeletal, dental, and other types of tissues, and play a role in the heartbeat, muscle contraction, and nerve impulse transmission. In addition, minerals help maintain the acid-alkaline balance of body fluids, regulate metabolism, and are a vital component of enzymes involved in cell activity.

Minerals and Health

A lack of minerals during growth period can inhibit growth, and lead to rickets or bone deformities. An adult who lacks sufficient muscle mass may also have a high probability of low bone density and a higher risk of developing osteomalacia and osteoporosis. If you have a lot of muscle, the weight of your bones also increases, which means an increase in minerals. To help prevent osteomalacia and osteoporosis, you need to increase your muscle mass by exercising. According to the BIA principle, minerals cannot be measured directly but can be obtained through correlation studies with DEXA, a bone density diagnostic equipment. Therefore, the minerals provided by the InBody are estimated values from the subject's muscle mass and physical development status. If the subject's minerals are significantly lower than the reference value, it is recommended to take a bone density test.

(4) Body Fat

What is Body Fat?

Body fat refers to the total amount of lipids that can be extracted from fat tissue and others. Body fat is largely classified as subcutaneous fat, which is accumulated in the base layer of the skin, and visceral fat, which is stored between the organs in the abdominal cavity. Generally, the fat distribution may vary depending on factors like obesity and frequency of exercise. The standard of percentage body fat is 15% for the adult male and 23% for the adult female.

Role of Body Fat

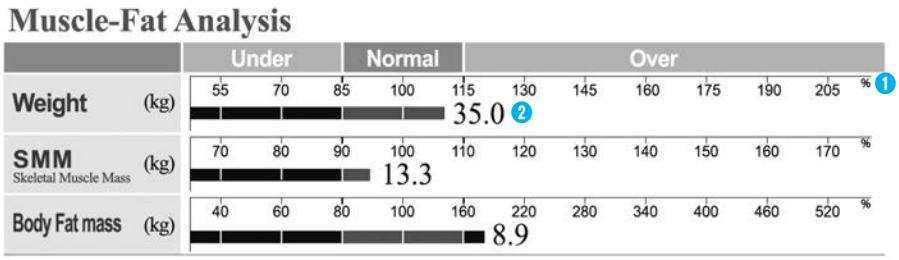
Body fat can be classified as essential and storage fat. Body fat in the bone marrow, heart, lungs, liver, spleen, kidneys, intestines, muscles, and lipid-rich tissues throughout the central nervous system is called essential fat, whereas fat that accumulates in adipose tissue is called storage fat. Essential fat is required by the body to perform essential functions and compose the cell membrane. Storage fat is composed of subcutaneous fat and visceral fat. Both types of storage fat protect the body from external force, act as insulation to maintain body temperature and can also be used as energy.

Body Fat and Health

Body fat acts as a storehouse for energy and can be stowed indefinitely under the skin. If the amount of body fat exceeds a certain level, it can increase the risk of lifestyle-related diseases such as hypertension, hyperlipidemia, arteriosclerosis, fatty liver, diabetes, and cancer. On the other hand, an insufficient amount of body fat can cause depression, chills, or infertility. Therefore, it is important to maintain the right amount of fat for good health. Growth hormone is responsible for breaking down fat and helping children grow taller. If excessive body fat is accumulated during growth period, it could inhibit the release of growth hormones and cause blood circulation problems. Ultimately, this results in poor nutrition, which hinders the growth process. In addition, the production of leptin hormones from subcutaneous fat increases and stimulates the release of sex hormones, causing precocious puberty. Obesity in the growth period increases the number of fat cells, which can easily lead to adult obesity. So, it is important to take proper steps to address childhood obesity.

3. Muscle-Fat Analysis

The balance between Skeletal Muscle Mass and Body Fat Mass is a key health indicator. Muscle-Fat Analysis shows this balance by comparing the length of the bars for Weight, Skeletal Muscle Mass, and Body Fat Mass. The volume of Skeletal Muscle Mass is less than Body Fat Mass in the same weight. Therefore, if two people have the same height and weight, the person who has more Skeletal Muscle Mass will have a slimmer and stronger body type. In addition, a muscular type of person has a high basal metabolic rate, so it consumes a lot of energy even when there is no activity and does not gain weight easily. The balance between Weight, Skeletal Muscle Mass, and Body Fat Mass can be analyzed by comparing the length of each bar.



Interpretation

❶ Weight, Skeletal Muscle Mass, and Body Fat Mass are displayed in kg.

❷ Length of the bar of Weight, Skeletal Muscle Mass, and Body Fat Mass is displayed based on the ideal weight.

1) Weight

Ideal weight refers to the recommended weight based on the height.

Ideal Weight (kg) = Ideal BMI (kg/m²) × Square of Height (m²)

The current weight status can be checked according to the ideal weight calculated using the equation above.
For children under the age of 18, the ideal BMI changes by growth status.

2) Skeletal Muscle Mass

The muscles in the body are largely divided into cardiac muscle, smooth muscle, and skeletal muscle. Skeletal muscles are located in between the bones and joints and are responsible for voluntary movement. Skeletal Muscle Mass can easily be changed by physical activity. When the Skeletal Muscle Mass is at 100%, it means that there is enough muscle mass compared to your ideal weight.

3) Body Fat Mass

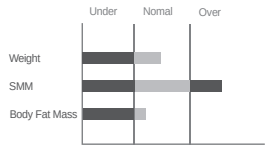
If Body Fat Mass is at 100%, it means that there is sufficient amount of body fat compared to your ideal weight.

Interpretation

The following is how to interpret Muscle-Fat analysis based on the length of the bars for Weight, Skeletal Muscle Mass, and Body Fat Mass.

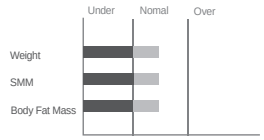
1) Normal Weight and Strong Type

This body type has a Weight and Body Fat Mass within the normal range and Skeletal Muscle Mass above the normal range.



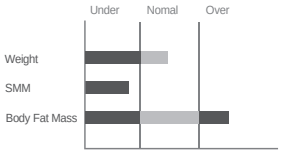
2) Normal Weight and Healthy Type

This body type has a Weight, Skeletal Muscle Mass, and Body Fat Mass within normal range.



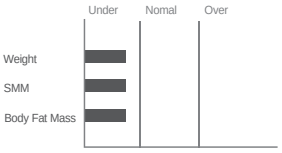
3) Normal Weight and Obese Type

This body type has an normal Weight, but Skeletal Muscle Mass is below and Body Fat Mass is above the normal range. Since the Weight is in the normal range, people with this body type do not look obese, but there is relatively a lot of Body Fat Mass in their body.



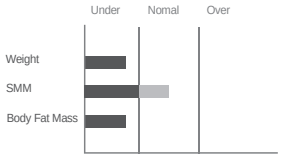
4) Underweight and Weak Type

The Weight, Skeletal Muscle Mass, and Body Fat Mass are all under the normal range. This may not be getting enough energy and nutrients needed for physical activity. In children, the growth may be slow and immunity can also be weakened.



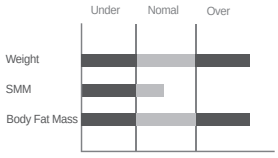
5) Underweight and Strong Type

The Weight and Body Fat Mass are under, but skeletal Muscle Mass is in the normal range. When Body Fat Mass is lower, the risk of lifestyle diseases is decreased, but if the Body Fat Mass is too low, it can cause other health issues.



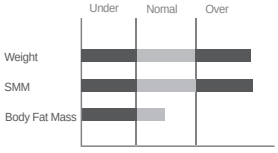
6) Overweight and Weak Type

The Weight and Body Fat Mass are over, but Skeletal Muscle Mass is in the normal range. To improve this body composition type, increase Muscle Mass via strength training and decrease Body Fat Mass with a nutritious, low-calorie diet and cardio exercise.



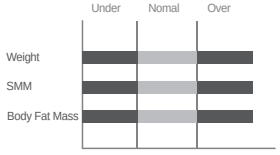
7) Overweight and Strong Type

The Weight and Skeletal Muscle Mass is over, and Body Fat Mass is below the normal range.
This body type is usually seen in athletes.



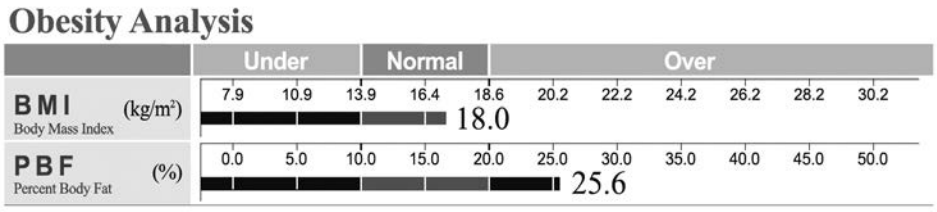
8) Overweight and Obese Type

The Weight, Skeletal Muscle Mass, and Body Fat Mass are above the normal range. Individuals with this body type may think that it is not a problem because of a large amount of Muscle Mass, but this muscle may have resulted from the increased Weight of through strength training. Therefore, people with this body type may need to lose weight even though their Muscle Mass is high.



4. Obesity Analysis

It is not possible to accurately analyze obesity based on height or weight values alone. For a more accurate obesity analysis, it is necessary to examine not only the body mass index (BMI), which is calculated from height and weight, but also the body fat percentage, which is the ratio of body fat to body weight. The InBody can detect hidden health risks like Sarcopenic Obesity, in which a person appears slim on the outside but has a high Percent Body Fat.



Interpretation

BMI helps analyze appearance obesity while Percent Body Fat helps analyze actual obesity.

1) BMI

BMI, or Body Mass Index, helps analyze appearance obesity. It is calculated using the following equation:BMI=Weight/ Height² (kg/m²). BMI is a conventional index of obesity analysis and is widely used in the medical, dietetics, and sports medicine fields. Many professionals rely on BMI because it is easy to calculate and convenient. The criteria for BMI varies depending on age, gender. \ InBody utilizes WHO growth chart. The normal range for BMI varies depending on age and gender, and InBody utilizes WHO standard.

2) Percent Body Fat

Percent Body Fat is the ratio of the Body Fat Mass to the Weight. Analyzing the ratio of Body Fat Mass to Weight is more appropriate than Body Fat Mass itself.

$$\text{Percent Body Fat}(\%) = \frac{\text{Body Fat Mass (kg)}}{\text{Weight (kg)}} \times 100$$

Normal Range of Percent Body Fat for Children

Body composition is constantly changing during the growth period, so the normal range of Percent Body Fat varies depending on age and developmental status. InBody presents ideal PBF based on the average height by age. If the height is taller than average, this will be considered and evaluated. The normal range of PBF would be ±5% from the ideal PBF. 'Slightly Obese' is when PBF is +5% from the ideal value and 'Obese' if when the PBF is +10% higher than the ideal value.

Boys

Age	Ideal PBF	Normal Range
Under 3y	16~20%	±5%
4 years	16%	±5%
Over 5y	15%	±5%
Adults	15%	±5%

* For those under 3 years old, the ideal precent body fat varies depending on the height.
* Even if 3 years of age or older, if the child is taller or smaller in the ages, the ideal percent body fat will be different in consideration of this.

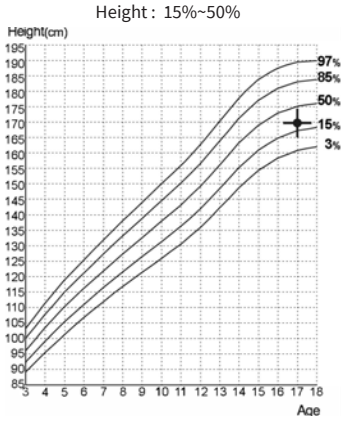
Girls

Age	Ideal PBF	Normal Range
Under 3y	16~20%	±5%
4~7 y	16%	±5%
8 y	17%	±5%
9 y	18%	±5%
10 y	19%	±5%
11 y	20%	±5%
12 y	21%	±5%
13 y	22%	±5%
Over 14 y	23%	±5%
Adult	23%	±5%

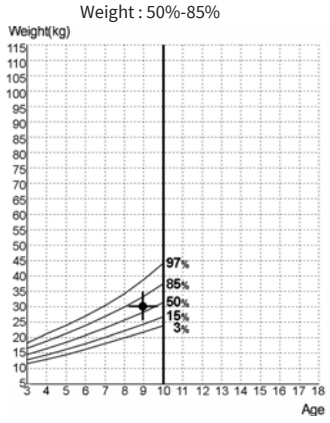
5. Growth Graph

InBody provides a Growth Graph to assess the growth and development of the child through a percentile graph based on age and gender.

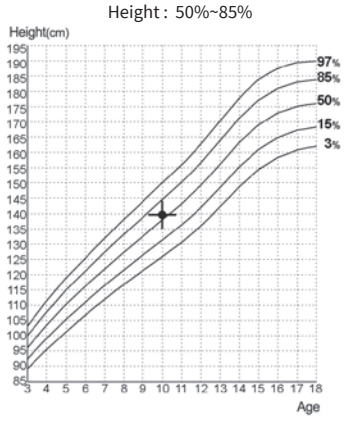
Height : 15%~50%



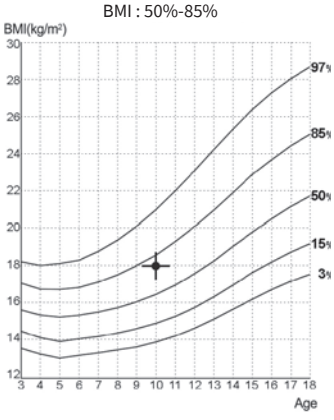
Weight : 50%-85%



Height : 50%~85%



BMI : 50%-85%



The Growth Graph indicates the height, weight, and BMI of the child in the percentiles, so you can see how many out of 100 children at the same age are.

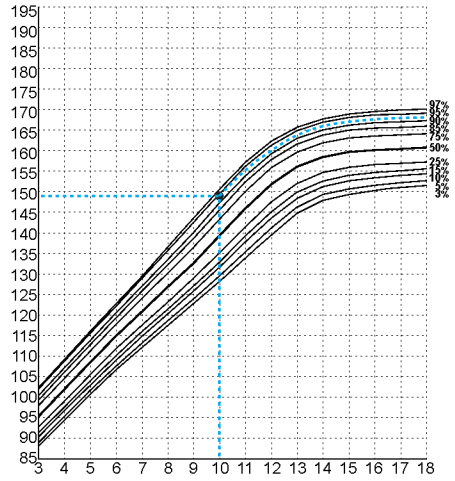
Percentiles indicate the relative position of the child in the distribution of the same age group. The 50th percentile (50%) represents the median value. Higher the height, the more weight the child get and the higher the percentile.
It is important to monitor the progress of physical development by checking the Growth Graph periodically, rather than focusing on one result.

Interpretation

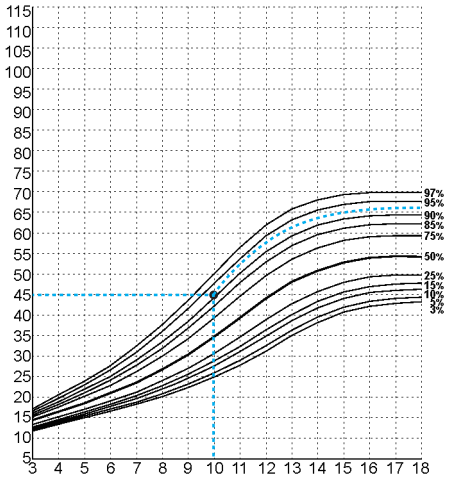
Please refer to the following examples.

e.g. Girl, 10 years old, 148cm, 45kg

Height : 90%~95%



Weight : 90%~95%



1) First, look at the height growth curve. The horizontal axis represents age, and the vertical axis represents height.

2) Find the intersection by finding 10 years old on the horizontal axis and 148 cm on the vertical axis.
This point is marked with ● on the Growth Graph.

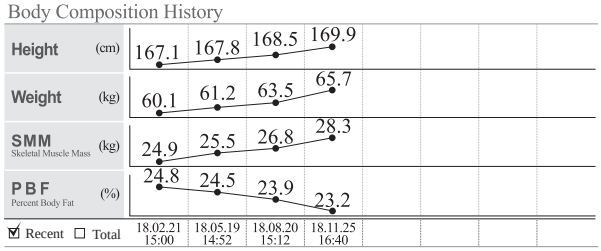
3) If you track the line passing through this point, the percentile section is marked on the right.
For a girl with 148cm of height and 10 years old, it is between 95 and 97%.

4) The weight graph is also marked with ● at 10 years of age on the horizontal axis and 45 kg on the vertical axis.
Using the same method above, the percentile for this girl is between 90%~95%.

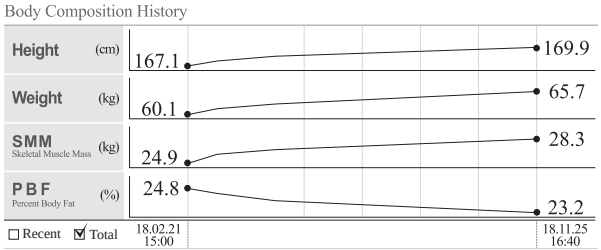
5) The taller the height, the heavier the weight; ● will appear at a higher point.

6. Body Composition History

You can monitor changes in Height, Weight, Skeletal Muscle Mass, and Percent Body Fat with Body Composition History. Taking regular InBody Test and monitoring changes in body composition is the first step toward a healthier life.



Recent Graph



Total Graph

Ⅳ. Research Result Sheet

InBody Research

[InBody970] [Yscope]

InBody
www.inbody.com

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15:44

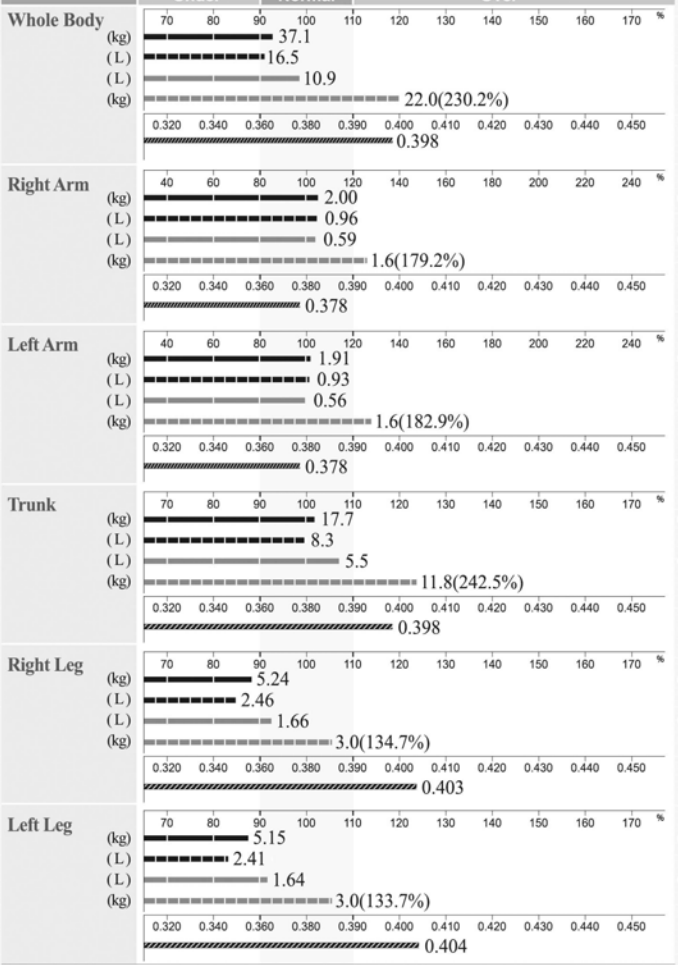
Body Composition Summary

	FFM/Lean	FM	ICW	ECW	TBW	ECW/TBW
Right Arm	2.00 kg	1.6 kg	0.96 L	0.59 L	1.55 L	0.378
Left Arm	1.91 kg	1.6 kg	0.93 L	0.56 L	1.49 L	0.378
Trunk	17.7 kg	11.8kg	8.3 L	5.5 L	13.8 L	0.398
Right Leg	5.24 kg	3.0 kg	2.46 L	1.66 L	4.12 L	0.403
Left Leg	5.15 kg	3.0 kg	2.41 L	1.64 L	4.05 L	0.404
Whole Body	37.1 kg	22.0 kg	16.5 L	10.9 L	27.4 L	0.398
Weight		59.1 kg	* The difference between the whole body values and sum of segmental values are from the craniocervical region.			

Body Composition Analysis

FMM·Lean Mass ICW ECW
Fat Mass ECW/TBW

Under | Normal | Over



Research Parameters

Body Mass Index	24.0 kg/m²	(18.5~25.0)
Percent Body Fat	37.2 %	(18.0~28.0)
Skeletal Muscle Mass	19.5 kg	(19.5~23.9)
Soft Lean Mass	34.9 kg	(33.8~41.4)
Protein	7.1 kg	(7.0~8.6)
Mineral	2.64 kg	(2.44~2.98)
Bone Mineral Content	2.18 kg	(2.01~2.45)
Basal Metabolic Rate	1171 kcal	(1255~1451)
Waist Hip Ratio	0.94	(0.75~0.85)
Waist Circumference	85.0 cm	
Visceral Fat Area	116.8 cm²	
Obesity Degree	114 %	(90~110)
Body Cell Mass	23.6 kg	(23.4~28.6)
Arm Circumference	30.5 cm	
Arm Muscle Circumference	26.0 cm	
TBW/FFM	73.7 %	
Fat Free Mass Index	15.1 kg/m²	
Fat Mass Index	8.9 kg/m²	
Skeletal Muscle mass Index	5.8 kg/m²	

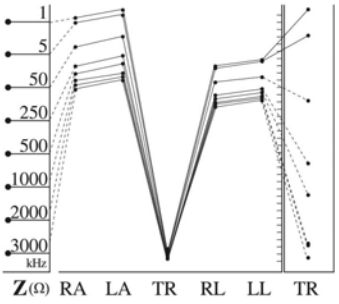
Whole Body Phase Angle

ϕ(°) 50 kHz | 4.0°

Segmental Body Phase Angle

	RA	LA	TR	RL	LL
ϕ(°) 5 kHz	1.7	4.7	1.7	1.6	4.5
50 kHz	4.1	5.7	4.0	3.8	4.3
250 kHz	3.8	5.6	2.9	2.9	2.9

Impedance



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A. Description of Result Sheet Parameters

1. Customer Information and Logo

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

InBody
www.inbody.com

Information such as ID, Height, Age, Gender, and Test Date/Time is displayed at the top of the result sheet.
Additionally, there is a designated space for a company logo.

1) You can input an ID using the keypad or touchscreen.
   The ID can use a combination of letters and numbers up to a maximum of 14 characters.
2) You can also input height, age, and gender using the keypad or touchscreen.
3) You can input a logo using a software provided by InBody. You can also input your business information such as the name, phone number, and address.

* Please contact Customer Service to change the logo.

2. Body Composition Summary

This table allows you to access segmental body composition easily.

Body Composition Summary

	❶ FFM/Lean	❷ FM	❸ ICW	❹ ECW	❺ TBW	❻ ECW/TBW
Right Arm	2.00 kg	1.6 kg	0.96 L	0.59 L	1.55 L	0.378
Left Arm	1.91 kg	1.6 kg	0.93 L	0.56 L	1.49 L	0.378
Trunk	17.7 kg	11.8kg	8.3 L	5.5 L	13.8 L	0.398
Right Leg	5.24 kg	3.0 kg	2.46 L	1.66 L	4.12 L	0.403
Left Leg	5.15 kg	3.0 kg	2.41 L	1.64 L	4.05 L	0.404
Whole Body	37.1 kg	22.0 kg	16.5 L	10.9 L	27.4 L	0.398
Weight		59.1 kg	* The difference between the whole body values and sum of segmental values are from the craniocervical region.			

(1) FFM/Lean : It is the lean mass of each segments and fat free mass(what is left over when fat is subtracted from the weight) of whole body.

(2) FM (Fat Mass) : It is the total amount of lipids that can be extracted from the fat and other tissues. It is the remainder after the FFM is subtracted from the weight.

(3) ICW(Intracellular Water): It is the water inside the cell membrane.

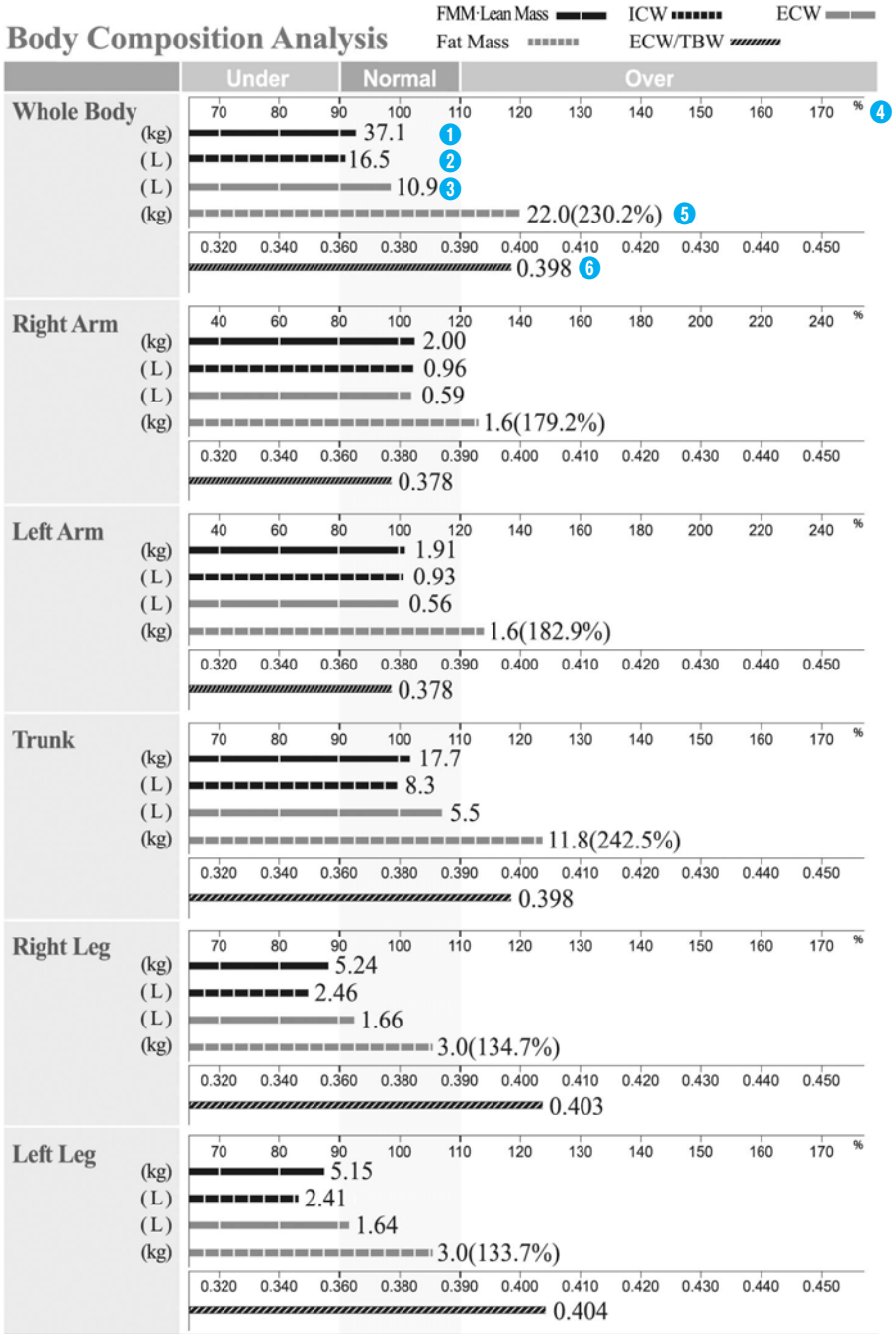
(4) ECW(Extracellular Water): It is the water outside of cell membrane including blood and interstitial fluid.

(5) TBW(Total Body Water): It is the sum of ICW and ECW.

(6) ECW/TBW: It is the ratio of ECW compared to the TBW. Generally, a healthy subject will have an ECW/TBW below 0.390.

3. Body Composition Analysis

This graph shows the segmental body composition.



Interpretation

❶ Weight of the Lean Mass in kilograms (kg).

❷ Amount of ICW in liters (L).

❸ Amount of ECW in liters (L).

❹ Scale in percentage. Using the scales in the graph, you can evaluate 'Under', 'Normal' , and 'Over'.

❺ Fat Mass in in kilograms (kg). The actual Fat Mass in each segment along with the percentage are shown.
By checking the percentage, you can accurately evaluate the fat accumulation in each body segment.

❻ It shows the body water balance. The normal range of ECW/TBW (ECW Ratio) is 0.360 ~ 0.390.

V . Visceral Fat Result Sheet

InBody Visceral Fat [InBody970] [Yscope]

InBody
www.inbody.com

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 :44

Body Fat Composition

	Values	Abdominal Fat Mass	Trunk Fat Mass	Body Fat Mass	Weight
Subcutaneous Fat (kg)	1.58 (0.90 ~ 1.81)	2.64 (1.35 ~ 2.71)	11.8 (3.9 ~ 7.8)	22.0 (10.3 ~ 16.5)	59.1 (43.9 ~ 59.5)
Visceral Fat (kg)	1.06 (0.45 ~ 0.90) Non-Abdominal Fat				
Arms/Legs Fat (kg)	9.1 (4.9 ~ 9.9)				
Fat Free Mass (kg)	37.1 (35.8 ~ 43.8)				

* The difference between the whole body values and sum of segmental values are from the craniocervical region.

Body Fat Analysis

	Under	Normal	Over
Weight (kg)	59.1		
Body Fat Mass (kg)	22.0		
BMI (kg/m²) Body Mass Index	24.0		
PBF (%) Percent Body Fat	37.2		

Abdominal Fat Analysis

	Under	Normal	Over
Abdominal Fat (kg)	2.64		
Subcutaneous Fat (kg)	1.58		
Visceral Fat (kg)	1.06		

Abdominal Obesity Analysis

	Under	Normal	Over
Waist-Hip Ratio	0.94		

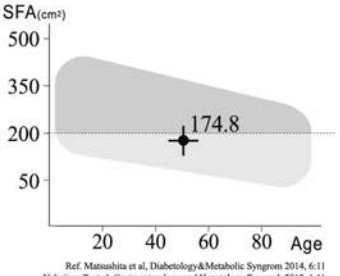
	Subcutaneous Fat Obese	Visceral Fat Obese
V/S Ratio Visceral/Subcutaneous Fat Ratio	0.67	

Body Fat History

	20.07.21 15:11	20.08.27 14:58	20.09.20 15:02	20.11.23 15:23	20.12.21 15:00	21.02.19 14:52	21.03.20 15:12	21.03.31 15:44
Weight (kg)	65.3	63.9	62.4	61.8	62.3	60.9	60.5	59.1
Body Fat Mass (kg)	27.0	26.0	24.5	24.1	24.5	23.5	22.9	22.0
Abdominal Fat (kg)	3.24	3.12	2.94	2.89	2.95	2.82	2.75	2.64
Subcutaneous Fat (kg)	1.94	1.87	1.76	1.73	1.76	1.69	1.64	1.58
Visceral Fat (kg)	1.30	1.25	1.18	1.16	1.18	1.13	1.10	1.06

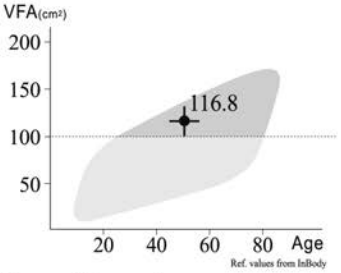
☑ Recent ☐ Total

Subcutaneous Fat Area



Ref. Matsushita et al, Diabetology&Metabolic Syngrom 2014, 6:11
Nakajima T. et al, Gastroenterology and Hepatology Research 2012, 1:11

Visceral Fat Area

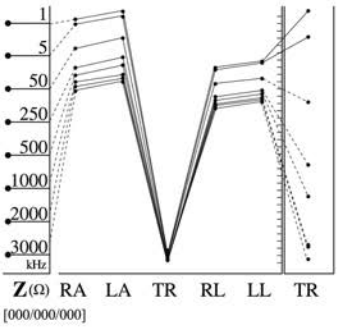


Ref. values from InBody

Research Parameters

Waist Circumference	85.0 cm	
Obesity Degree	114 %	(90~110)
Waist-Height Ratio	0.54	(0.51 Under)
Body Adiposity Index	28.1	(26.9 Under)
ABSI	0.081	(0.076 Under)
Conicity Index	1.27	(1.25 Under)
Basal Metabolic Rate	1171 kcal	(1255~1451)
ECW Ratio	0.398	(0.360~0.400)
SMI	5.8 kg/m²	
FMI	8.9 kg/m²	
Lean Mass/Visceral Fat Area	0.17 kg/m²	(0.15 Over)

Impedance



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A. Description of Result Sheet Parameters

1. Customer Information and Logo

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

InBody
www.inbody.com

Information such as ID, Height, Age, Gender, and Test Date/Time is displayed at the top of the result sheet.
Additionally, there is a designated space for a company logo.

1) You can input an ID using the keypad or touchscreen.
   The ID can use a combination of letters and numbers up to a maximum of 14 characters.
2) You can also input height, age, and gender using the keypad or touchscreen.
3) You can input a logo using a software provided by InBody.
   You can also input your business information such as the name, phone number, and address.

* Please contact Customer Service to change the logo.

2. Body Fat Composition

Body fat refers to the total amount of lipids that can be extracted from fat tissue and others. Body fat is largely classified as subcutaneous fat, which is accumulated in the base layer of the skin, and visceral fat, which is stored between the organs in the abdominal cavity. Generally, the fat distribution may vary depending on factors like obesity and frequency of exercise. The standard of percentage body fat is 15% for the adult male and 23% for the adult female.

Body Fat Composition

	Values	Abdominal Fat Mass	Trunk Fat Mass	Body Fat Mass	Weight
❶ Subcutaneous Fat (kg)	1.58 (0.90 ~ 1.81)	2.64 (1.35 ~ 2.71)	11.8 (3.9 ~ 7.8)	22.0 (10.3 ~ 16.5)	59.1 (43.9 ~ 59.5)
❷ Visceral Fat (kg)	1.06 (0.45 ~ 0.90)				
	Non-Abdominal Fat				
❸ Arms/Legs Fat (kg)	9.1 (4.9 ~ 9.9)				
❹ Fat Free Mass (kg)	37.1 (35.8 ~ 43.8)				

* The difference between the whole body values and sum of segmental values are from the craniocervical region.

Weight = Subcutaneous Fat + Visceral Fat + Non-Abdominal Fat + Arms/Legs Fat + Fat Free Mass

(1) Subcutaneous Fat

What is Subcutaneous Fat?

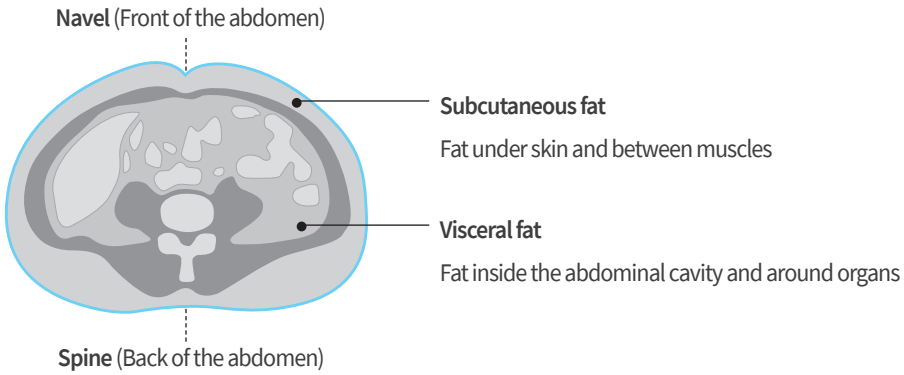
Subcutaneous fat is located between the skin and muscle. It is mainly accumulated in the arms, hips, thighs, and especially in the lower abdomen. Subcutaneous fat can be divided into two layers: the circular layer and fat layer.

▶ Circular layer: It is the outer layer of the subcutaneous fat. It is firm and will not increase more than a certain amount even if weight is gained. The structural function of this layer is to support the skin over the fascia.

▶ Fat layer: It is located deep within the subcutaneous fat. This layer is softer and loose, so it acts as storage for the remaining energy. It can increase in size up to 10 times its original size, making it the actual fat layer of the body.

Role of Subcutaneous Fat

Subcutaneous fat accumulates as a result of excess food consumption. It is stored in layers between the skin and muscles, and used as an energy source in emergencies, and acts as an insulator to maintain body temperature.
Females have more subcutaneous fat than males. Particularly in adult women, it is distributed in large amounts throughout the body, which characterizes the female body shape.



(2) Visceral Fat

What is Visceral Fat?

Visceral fat is a type of abdominal fat that surrounds the organs. Visceral fat obesity is characterized when an excessive amount of visceral fat accumulates in the mesentery that connects the intestines in the abdominal cavity. Unlike subcutaneous fat, increased visceral fat raises the risk of cardiovascular diseases and diabetes caused by metabolic syndrome, hyperlipidemia, and insulin resistance. Excessive consumption of fast food, fatty meat, and carbohydrates along with a lack of exercise, smoking, drinking, and stress may cause visceral fat obesity. Accurate measurement of visceral fat is possible with a CT scan, but it is also possible to approximate the degree of abdominal obesity through a simple measurement of waist circumference, BMI, BIA, and calculation of abdominal obesity.

(3) Arm/Leg Fat

It refers to the fat in the limbs, excluding any fat accumulated in the trunk (torso). The value is the sum of the Segmental Fat Mass of both the arms and legs in the “Segmental Fat Analysis” section of the Body Composition Result Sheet.

(4) Fat Free Mass

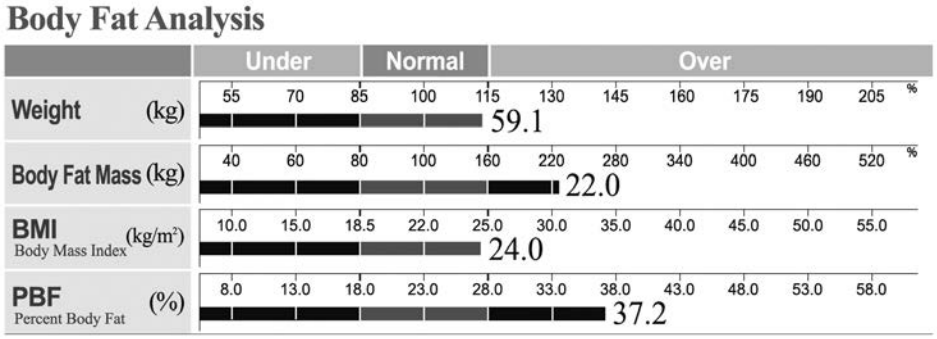
Fat Free Mass is what is left over when fat is subtracted from the weight.

Fat Free Mass = Total Body Water + Protein + Minerals

Muscle is the biggest component of the fat free mass. Except for the intramuscular fat that exists between muscles, all muscle cells are classified as fat free mass. So, the more muscle mass you have, the more fat free mass you have, and if you have more muscle, you basically need more energy, so your basal metabolic rate is also high. Therefore, a person with a high basal metabolic rate burns more calories when he or she consumes the same amount of calories, and as a result, there is less energy surplus and the rate of accumulation as fat is lowered, thereby reducing the risk of becoming obese.

3. Body Fat Analysis

Similar to the Obesity Analysis parameter in the Body Composition Result Sheet, you can use Body Fat Analysis to evaluate obesity by examining the body fat mass compared to the weight and percent body fat.



Interpretation

Weight and BMI are used for analysis of apprent obesity and Body Fat Mass and PBF for actual obesity.

(1) Weight

Body Weight consists of Total Body Water, Protein, Minerals, and Body Fat Mass. Therefore, Weight is the sum of these body components.

Weight = Total Body Water + Protein + Minerals + Body Fat Mass

(2) Body Fat Mass

What is Body Fat?

Body fat refers to the total amount of lipids that can be extracted from fat tissue and others. Body fat is largely classified as subcutaneous fat, which is accumulated in the base layer of the skin, and visceral fat, which is stored between the organs in the abdominal cavity. Generally, the fat distribution may vary depending on factors like obesity and frequency of exercise. The standard of percentage body fat is 15% for the adult male and 23% for the adult female.

Role of Body Fat

Body fat can be classified as essential and storage fat. Body fat in the bone marrow, heart, lungs, liver, spleen, kidneys, intestines, muscles, and lipid-rich tissues throughout the central nervous system is called essential fat, whereas fat that accumulates in adipose tissue is called storage fat. Essential fat is required by the body to perform essential functions and compose the cell membrane. Storage fat is composed of subcutaneous fat and visceral fat. Both types of storage fat protect the body from external force, act as insulation to maintain body temperature and can also be used as energy.

Body Fat and Health

Body fat acts as a storage for energy and can be stowed indefinitely under the skin. If the amount of body fat exceeds a certain level, it can increase the risk of lifestyle-related diseases such as hypertension, hyperlipidemia, arteriosclerosis, fatty liver, diabetes, and cancer. On the other hand, an insufficient amount of body fat can cause depression, chills, or infertility. Therefore, it is important to maintain the right amount of fat for good health.

(3)BMI

BMI, or Body Mass Index, helps analyze appearance obesity. It is calculated using the following equation:BMI=Weight/Height^2(kg/m^2). BMI is a conventional index of obesity analysis and is widely used in the medical, dietetics, and sports medicine fields. Many professionals rely on BMI because it is easy to calculate and convenient.

However, BMI does not accurately analyze body fat or identify potential health risks associated with obesity and other conditions. The primary problem with BMI is that it does not differentiate between muscle and fat. For example, athletes with a lot of muscle mass may be incorrectly categorized as obese using BMI but the InBody Test would show that they have low Percent Body Fat, which is a much more accurate indicator of overall health.

(4) Percent Body Fat

Percent Body Fat is the ratio of the Body Fat Mass compared to the Weight. Analyzing the ratio of Body Fat Mass to Weight is more appropriate than Body Fat Mass itself. The ideal percent body fat for males is 15% and 23% for females compared to the weight. For children under 18, the ideal Percent Body Fat is presented based on the average height according to age due to changes in body composition during growth periods. However, if the growth rate is faster than the same age group, the growth status is considered for determining ideal percent body fat.

$$\text{Percent Body Fat (\%)} = \frac{\text{Body Fat Mass (kg)}}{\text{Body Weight (kg)}} \times 100$$

For example, to calculate the PBF of a person weighing 50 kg with 12 kg of fat mass,

$$\text{Percent Body Fat (\%)} = \frac{12\text{kg}}{50\text{kg}} \times 100 = 24\%$$

Normal Range of Percent Body Fat (Adult)

Normal Range	Male	Female
Normal	10 ~ 20%	18 ~ 28%
Overweight	20 ~ 25%	28 ~ 33%
Obesity	Over 25%	Over 33%

* Ideal percent body fat of children will apply when a child is under 18-years old

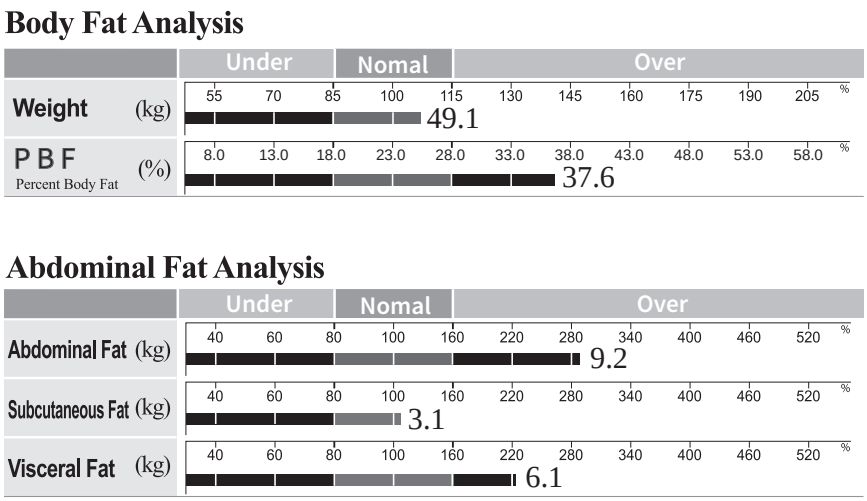
4. Abdominal Fat Analysis

You can see how much subcutaneous fat and visceral fat account for the total amount of abdominal fat, and you can evaluate whether the amount of visceral fat is greater than the amount of subcutaneous fat or vice versa.

Interpretation

First, check the PBF to analyze obesity, then check the visceral and subcutaneous fat resulted in the accumulation of abdominal fat.

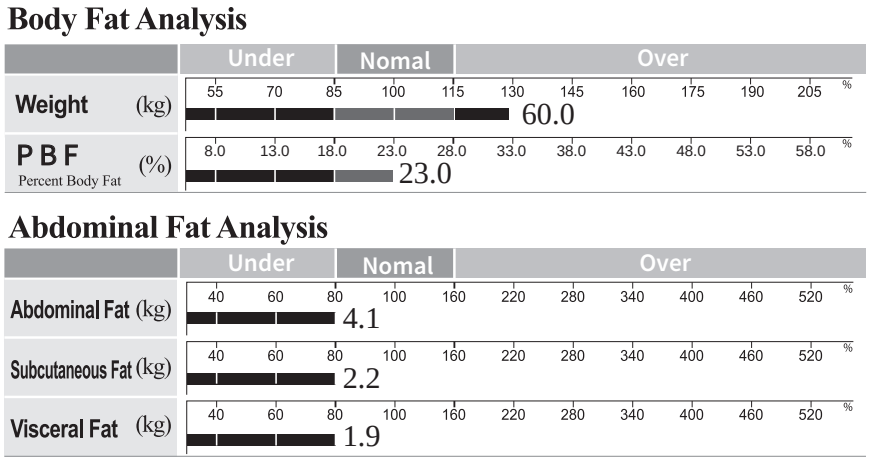
1) Obese Type



This could be considered an sarcopenic obese type because weight is within normal range and PBF is over normal range.

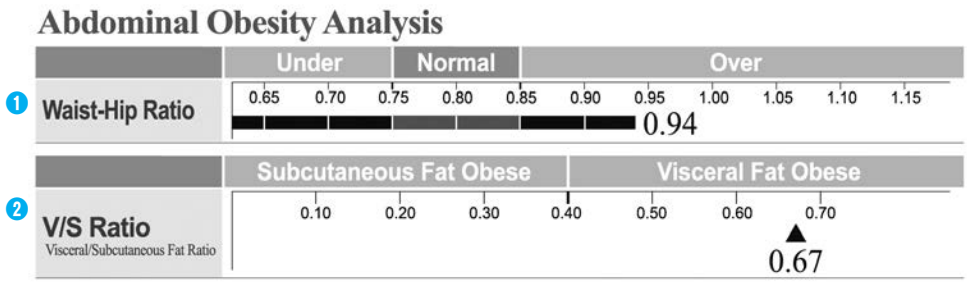
And this subject has the abdominal obesity with a lot of visceral fat.

2) Muscular Type



Although the weight is over the normal range, this subject is not an obese body type because there would be a lot of muscle in the body, resulting in a PBF in the normal range. Additionally, you can see that this individual does not have much abdominal fat since all bars are below the normal range.

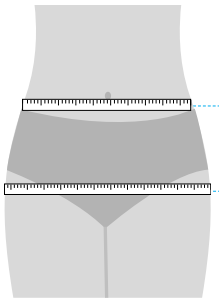
5. Abdominal Obesity Analysis



❶ Waist-Hip Ratio (WHR) is calculated by dividing the waist circumference by the hip circumference.
WHR is an simple index that is used to determine abdominal obesity.

❷ The V/S (visceral fat/subcutaneous fat) Ratio is used to determine whether a person has visceral fat obesity or subcutaneous fat obesity. If the V/S ratio is 0.4 or more, it is considered visceral fat abdominal obesity, and if the V/S ratio is 0.4 or less, it is considered subcutaneous fat type.

Besides PBF, Waist Hip Ratio (WHR) is additional health indicator based on obesity level. WHR is calculated by dividing the Waist Circumference by the Hip Circumference.



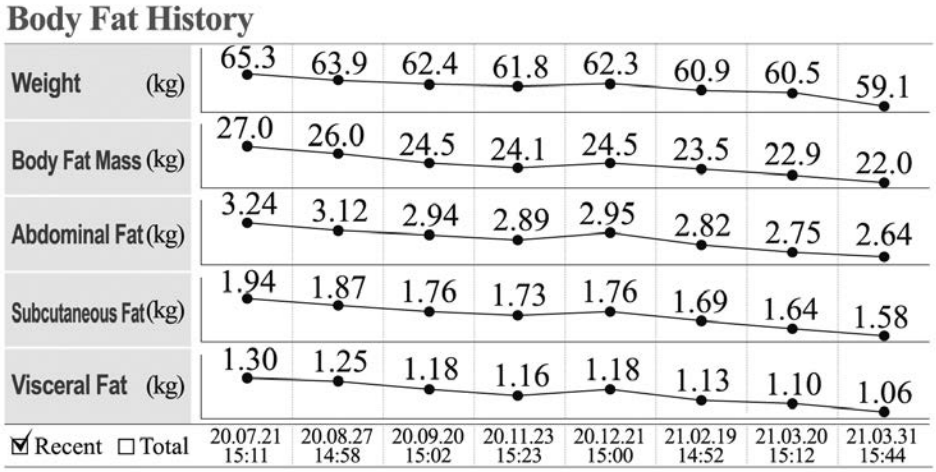
Waist Cir. - Measure the circumference horizontally around your navel.

Hip Cir. - Measure the circumference horizontally based on the most protruding part of the hip.

WHR = Waist Cir. / Hip Cir.

If the WHR is 0.90 or more in males and 0.85 or more in females, it is considered abdominal obesity. It cannot be the absolute standard of being lean and slim because WHR can still be high for those who are thin and have a small hip circumference, even if their waist circumference is not high.

6. Body Fat History



You can monitor changes in Weight, Body Fat Mass, Abdominal Fat, Subcutaneous Fat, and Visceral Fat with Body Fat History.
Taking regular InBody Test and monitoring changes in body composition is the first step toward a healthier life.

VI. Evaluation Result Sheet

InBody Evaluation

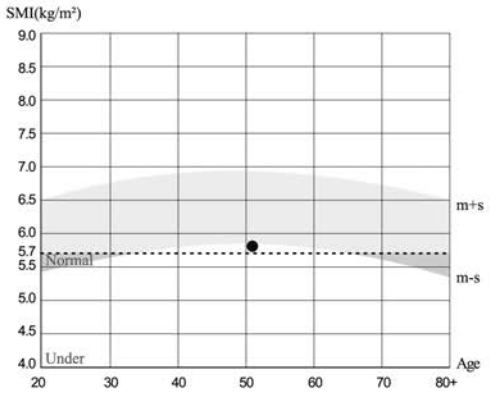
[InBody970] [Yscope]

InBody
www.inbody.com

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

Muscle · Nutrition Evaluation

Skeletal Muscle mass Index

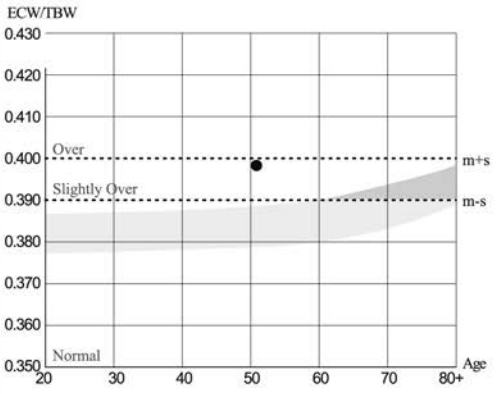


Chen et al. JAMDA 2020;21(3):300-307
Ref. values from InBody

SMI(kg/m²)	Young adults (T-score)	Age-matched (Z-score)
5.8	-0.5	-1.0

Body Water Evaluation

Whole Body ECW Ratio

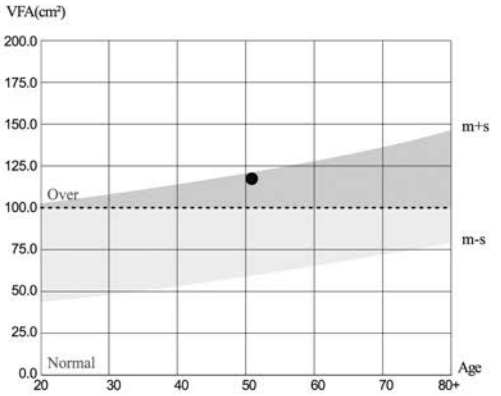


Ref. values from InBody

ECW/TBW	Young adults (T-score)	Age-matched (Z-score)
0.398	3.3	2.9

Visceral Fat Area Evaluation

Visceral Fat Area

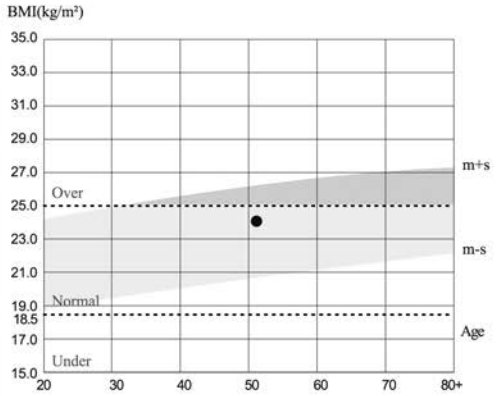


Ref. values from InBody

VFA(cm²)	Young adults (T-score)	Age-matched (Z-score)
116.8	1.4	0.8

Weight Evaluation

Body Mass Index



Ref. values from InBody

BMI(kg/m²)	Young adults (T-score)	Age-matched (Z-score)
24.0	0.8	0.1

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A. Description of Result Sheet Parameters

1. Customer Information and Logo

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

InBody
www.inbody.com

Information such as ID, Height, Age, Gender, and Test Date/Time is displayed at the top of the result sheet.
Additionally, there is a designated space for a company logo.

1) You can input an ID using the keypad or touchscreen.
   The ID can use a combination of letters and numbers up to a maximum of 14 characters.
2) You can also input height, age, and gender using the keypad or touchscreen.
3) You can input a logo using a software provided by InBody. You can also input your business information such as the name, phone number, and address.

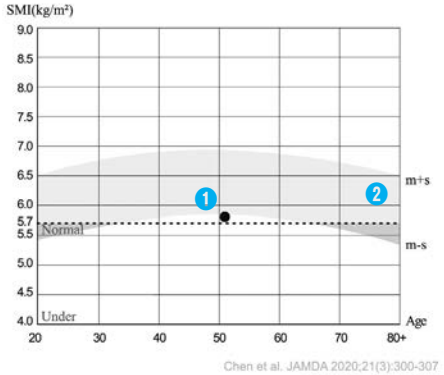
* Please contact Customer Service to change the logo.

2. Muscle-Nutrition Evaluation

The SMI (kg/m²) graph by age provides mean and standard deviation graphs based on InBody Big Data, and you can check and evaluate the current examinees position.

Muscle · Nutrition Evaluation

Skeletal Muscle mass Index



Chen et al. JAMDA 2020;21(3):300-307
Ref. values from InBody

SMI(kg/m²)	Young adults (T-score)	Age-matched (Z-score)
5.8	-0.5	-1.0

Interpretation

The gray area represents the mean and standard deviation of SMI by age (20-80).

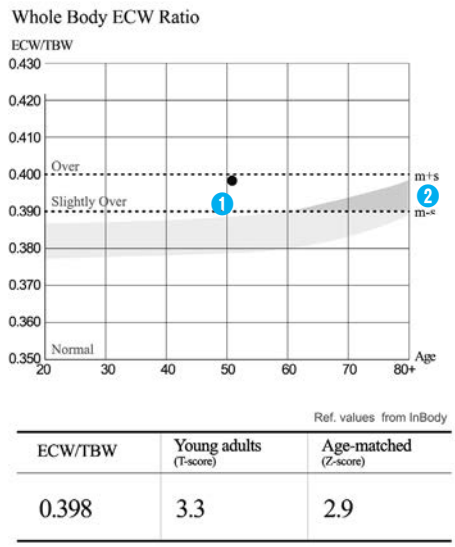
The X-axis of the graph represents age (in years), the Y-axis represents SMI (kg/m²), and the top and bottom of the shaded graph are the mean + standard deviation and the mean - standard deviation.

❶ Current measurement result.
❷ Cut-off value of SMI can be used to evaluate the nutrtional status. InBody considers "Under" below the line.

3. Body Water Evaluation

The Whole Body ECW Ratio graph by age provides mean and standard deviation graphs based on InBody Big Data, and you can check and evaluate the current examinees position.

Body Water Evaluation



Ref. values from InBody

ECW/TBW	Young adults (T-score)	Age-matched (Z-score)
0.398	3.3	2.9

Interpretation

The grey area represents the mean value and standard deviation of the Whole Body ECW Ratio (ECW/TBW) by age (20-80).

The X-axis of the graph represents age (in years), the Y-axis represents Whole Body ECW Ratio (ECW/TBW), and the top and bottom of the shaded graph are the mean + standard deviation and the mean - standard deviation.

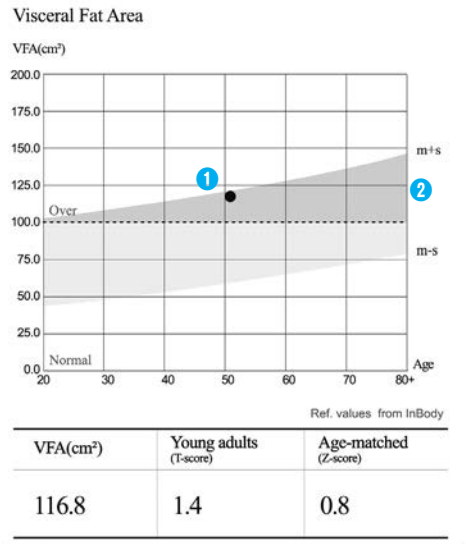
❶ Current measurement result.

❷ Cutoff value of Whole Body ECW Ratio can be used to analyze body water balance. InBody categorizes "Normal" as under 0.390, "Slightly Over" as 0.390 - 0.400, and "Over" as more than 0.400.

4. Visceral Fat Area Evaluation

The Visceral Fat Area (cm²) graph by age provides mean and standard deviation graphs based on InBody Big Data, and you can check and evaluate the current examinees position.

Visceral Fat Area Evaluation



Ref. values from InBody

VFA(cm²)	Young adults (T-score)	Age-matched (Z-score)
116.8	1.4	0.8

Interpretation

The grey area represents the mean and standard deviation of the Visceral Fat Area(cm²) by age (20-80).
The X-axis of the graph represents age (in years), the Y-axis represents Visceral Fat Area (cm²), and the top and bottom of the shaded graph are the mean + standard deviation and the mean - standard deviation.

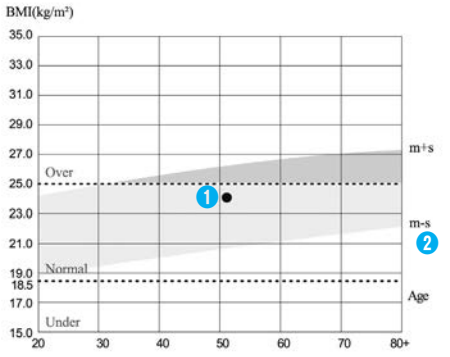
❶ Current measurement result.
❷ Cutoff value of Visceral Fat Area can be used to assess health status. InBody considers "Over" if it is more than 100cm².

5. Weight Evaluation

The BMI (kg/m²) graph by age provides mean and standard deviation graphs based on InBody Big Data, and you can check and evaluate the current examinees position.

Weight Evaluation

Body Mass Index



Ref. values from InBody

BMI(kg/m²)	Young adults (T-score)	Age-matched (Z-score)
24.0	0.8	0.1

Interpretation

The gray area represents the mean and standard deviation of the BMI by age (20-80).

The X-axis of the graph represents age (in years), the Y-axis represents BMI (kg/m²), and the top and bottom of the shaded graph are the mean + standard deviation and the mean - standard deviation.

❶ Current measurement result.

❷ Cut-off value of BMI can be used to assess health status. InBody considers "Under" if the BMI is less than 18.5, "Normal" within the range of 18.5 - 25.0, and "Over" when it is more than 25.0 based on WHO standard.

VII. Comparison Result Sheet

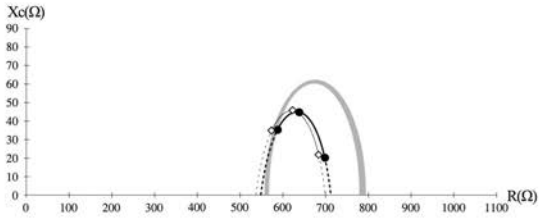
InBody Comparison [InBody970] [Yscope]

InBody
www.inbody.com

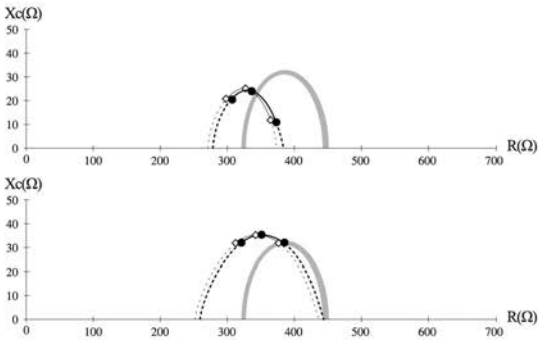
ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

Standard median curve — Today's Results — Recent Results (2021.03.20 15:12)

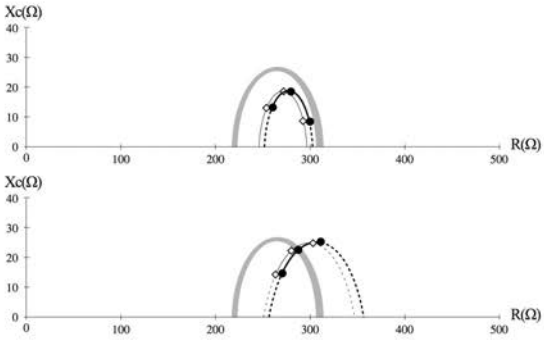
Whole Body		Today	Recent	Difference
Weight	(kg)	59.1	60.5	-1.4
SMM Skeletal Muscle Mass	(kg)	19.5	19.8	-0.3
Body Fat Mass	(kg)	22.0	22.8	-0.8
ECW Ratio		0.398	0.398	0.000
Phase Angle	(°)	4.0	4.1	-0.1



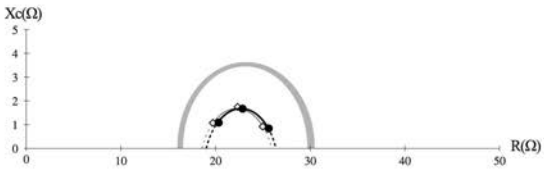
Right Arm		Today	Recent	Difference
Lean Mass	(kg)	2.00	2.06	-0.06
ECW Ratio		0.378	0.378	0.000
Phase Angle	(°)	4.1	4.3	-0.2
Left Arm		**Today**	**Recent**	**Difference**
Lean Mass	(kg)	1.91	1.98	-0.07
ECW Ratio		0.378	0.377	+0.001
Phase Angle	(°)	5.7	5.7	0.0



Right Leg		Today	Recent	Difference
Lean Mass	(kg)	5.24	5.35	-0.11
ECW Ratio		0.403	0.403	0.000
Phase Angle	(°)	3.8	3.8	0.0
Left Leg		**Today**	**Recent**	**Difference**
Lean Mass	(kg)	5.15	5.26	-0.11
ECW Ratio		0.404	0.405	-0.001
Phase Angle	(°)	4.3	4.3	0.0



Trunk		Today	Recent	Difference
Lean Mass	(kg)	17.7	18.0	-0.3
ECW Ratio		0.398	0.399	-0.00
Phase Angle	(°)	4.0	4.1	-0.1



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A. Description of Result Sheet Parameters

1. Customer Information and Logo

ID	Height	Age	Gender	Test Date / Time
Jane Doe	156.9cm	51	Female	2021.03.31. 15 : 44

InBody
www.inbody.com

Information such as ID, Height, Age, Gender, and Test Date/Time is displayed at the top of the result sheet.
Additionally, there is a designated space for a company logo.

1) You can input an ID using the keypad or touchscreen.
   The ID can use a combination of letters and numbers up to a maximum of 14 characters.
2) You can also input height, age, and gender using the keypad or touchscreen.
3) You can input a logo using a software provided by InBody.
   You can also input your business information such as the name, phone number, and address.

* Please contact Customer Service to change the logo.

2. Comparison of Today/Recent Body Composition Data on Whole Body and Segments

Both today and recent results will be displayed so you can check changes in body composition at a glance.
In addition to the whole body, result for segmental body (RA, LA, RL, and LL) is also provided.

		❶	❷	❸
Whole Body		Today	Recent	Difference
Weight	(kg)	59.1	60.5	-1.4
SMM Skeletal Muscle Mass	(kg)	19.5	19.8	-0.3
Body Fat Mass	(kg)	22.0	22.8	-0.8
ECW Ratio		0.398	0.398	0.000
Phase Angle	(°)	4.0	4.1	-0.1

		❶	❷	❸
Right Arm		Today	Recent	Difference
Lean Mass	(kg)	2.00	2.06	-0.06
ECW Ratio		0.378	0.378	0.000
Phase Angle	(°)	4.1	4.3	-0.2
Left Arm		Today	Recent	Difference
Lean Mass	(kg)	1.91	1.98	-0.07
ECW Ratio		0.378	0.377	+0.001
Phase Angle	(°)	5.7	5.7	0.0

Interpretation

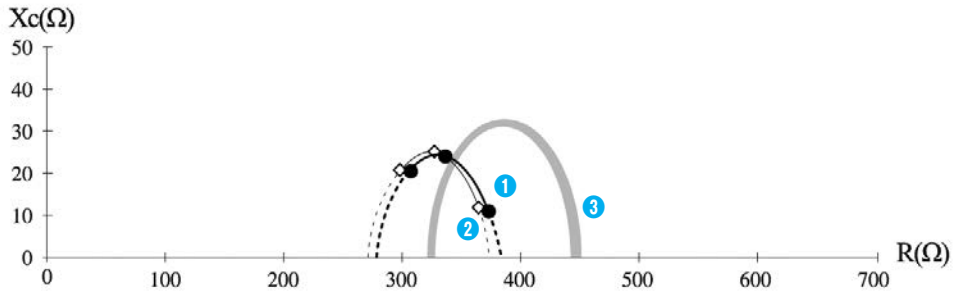
❶ Today's measurement result.
❷ Recent measurement result.
❸ Differences in body composition data between the today and recent results.

Interpretation

❶ Today's measurement result.
❷ Recent measurement result.
❸ Differences in body composition data between the today and recent results.

3. Comparison of Today/Recent Cole-Cole Plot graph on Whole Body and Segments

Cole-Cole plot is the complex impedance spectrum technique and is a well-known and powerful tool which has been effectively used for understanding the electrical properties of the body. It provides the information about the resistive and reactive components of a body. The X-axis represents the resistance (Ω), and the Y-axis represents the reactance (Ω). The resistance that occurs when weak alternating current passes through the body water is called resistance, while reactance is when this current passes through the cell membrane. As the x-axis graph moves to the left, the amount of water in the body increases, and the y-axis graph moves upward, it can be evaluated that the cell membrane is healthy. The Segmental Cole-Cole Plot graph is interpreted in the same way as the Whole Body interpretation.



Interpretation

❶ Cole-Cole Plot based on the current result.

❷ Cole-Cole Plot based on the previous measurement.

❸ Standard Median Curve

VIII. Additional Parameters

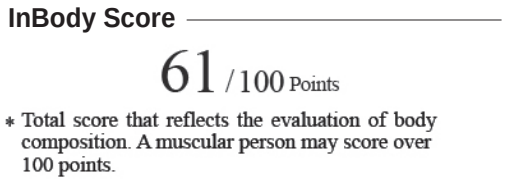
(B :Body Composition Result Sheet, W :Body Water Result Sheet, C :Body Composition Result Sheet for Children, R :Research Result Sheet, V :Visceral Fat Result Sheet)

The Body Composition Result Sheet, Body Water Result Sheet, Body Composition Result Sheet for Children, Research Result Sheet, and Visceral Fat Result Sheet provide additional parameters on the right side of the result sheet. The InBody can provide several different combinations of these parameters depending on the needs of the user. The parameters on the right side of the result sheet are listed below with the corresponding result sheet marked as B, W, C, R, V

* Evaluation Result Sheet and Comparison Result Sheet are not applicable.
* The parameters on the Research Result Sheet cannot be changed.

1. InBody Score B

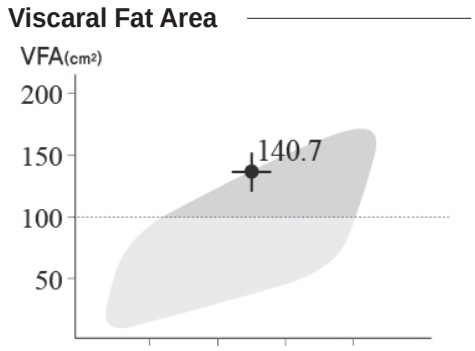
The InBody Score is a unique index created by InBody to help make it easier to understand the current body composition status. The standard range is between 70~90 points, and based on the weight control, the point +,- from 80 points.



Score	Evaluation	Interpretation
Above 90	Very strong	Very well-developed muscle mass
80 to 90	Strong	Muscular & healthy
70 to 80	Normal	Generally healthy
Below 70	Weak	Insufficient muscle mass or obese type requiring exercise and/or diet control

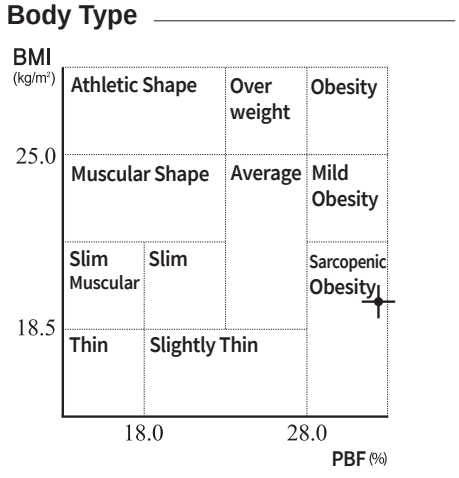
2. Visceral Fat Area(Graph) B, V

Visceral fat is the abdominal adipose tissue that is distributed in between the organs and, the excessive amount of visceral fat, contributes to increase the risk for cardiovascular disease, metabolic syndrome and other disease. Visceral Fat Area is the cross-sectional area of visceral fat. The shaded area in the graph shows how the visceral fat area is distributed by age. Visceral fat area increases with age. The subject's position is marked with a ( ).



3. Body Type B

This graph shows 11 different body types based on the BMI and PBF.
If the PBF is high and BMI is low, it would be classified as Sarcopenic obesity.



4. Weight Control B

Weight Control is helpful for making the necessary changes to improve body composition, whether weight loss or weight gain is recommended via increasing muscle mass or decreasing fat mass.

Weight Control

Target Weight	73.7 kg
Weight Control	-15.8 kg
Fat Control	-17.3 kg
Muscle Control	+ 1.5 kg

5. Nutrition Evaluation B, C

Nutrition Evaluation is provided based on body composition analysis.

Nutrition Evaluation

Protein	☑ Normal	☐ Deficient
Minerals	☐ Normal	☑ Deficient

6. Obesity Evaluation B, C

Obesity Evaluation helps you assess whether BMI and PBF is normal or not.

Obesity Evaluation

BMI	☑ Normal	☐ Under	☐ Slightly Over ☐ Over
PBF	☐ Normal	☑ Slightly Over	☐ Over

7. Body Balance Evaluation B, C

Body Balance Evaluation helps you assess whether the muscle mass in each body part is balanced. The balance of the upper body is evaluated by the difference in the muscle mass of both arms, while the balance of the lower body is evaluated by the difference in muscle mass in both legs. The upper-lower body balance is evaluated by the difference in muscle mass between the upper and lower body.

Body Balance Evaluation

Upper	☑ Balanced	☐ Slightly Unbalanced	☐ Extremely Unbalanced
Lower	☑ Balanced	☐ Slightly Unbalanced	☐ Extremely Unbalanced
Upper-Lower	☑ Balanced	☐ Slightly Unbalanced	☐ Extremely Unbalanced

8. Segmental Fat Analysis B

Segmental Fat Analysis displays fat mass in each body segment. The graph shows a percentage(%) compared to the ideal value of each segments, and you can check whether body fat is properly distributed in each part of the body.

Segmental Fat Analysis

Right Arm	(2.0kg)	285.20%
Left Arm	(2.0kg)	285.20%
Trunk	(14.6kg)	313.4%
Right Leg	(4.2kg)	216.0%
Left Leg	(4.2kg)	216.0%

9. Body Water Composition W

Body Water Composition shows the amount of Intracellular water, Extracellular Water and Total Body Water.

Body Water Composition

TBW	45.0 (41.4~50.6)
ICW	27.8 (25.6~31.4)
ECW	17.2 (15.8~19.3)

10. Segmental Body Water Analysis B, W

Segmental Body Water Analysis shows the sum of Intracellular Water and Extracellular Water water in each body segment.

Segmental Body Water Analysis

Right Arm	2.67 L	(2.34 ~ 3.16)
Left Arm	2.76 L	(2.34 ~ 3.16)
Trunk	21.6 L	(19.7 ~ 24.1)
Right Leg	8.37 L	(6.88 ~ 8.40)
Left Leg	8.28 L	(6.88 ~ 8.40)

11. Segmental Intracellular/Extracellular Water Analysis B, W

Segmental ICW/ECW Analysis shows the amount of Intracellular and Extracellular Water in each part of the body.

Segmental ICW Analysis

Right Arm	1.67 kg	(1.46 ~ 1.96)
Left Arm	1.72 kg	(1.46 ~ 1.96)
Trunk	13.4 kg	(12.2 ~ 15.0)
Right Leg	5.17 kg	(4.27 ~ 5.21)
Left Leg	5.08 kg	(4.27 ~ 5.21)

Segmental ECW Analysis

Right Arm	1.00 kg	(0.88 ~ 1.20)
Left Arm	1.04 kg	(0.88 ~ 1.20)
Trunk	8.2 kg	(7.5 ~ 9.1)
Right Leg	3.20 kg	(2.61 ~ 3.19)
Left Leg	3.20 kg	(2.61 ~ 3.19)

12. Body Composition Analysis W

Body Composition Analysis shows Protein, Minerals, Body Fat Mass, Fat Free Mass, and Bone Mineral Content. The sum of these body composition components is body weight.

Body Composition Analysis

Protein	12.0 kg	(11.1 ~ 13.5)
Minerals	4.14 kg	(3.83 ~ 4.69)
Body Fat Mass	28.4 kg	(8.9 ~ 17.7)
Fat Free Mass	61.1 kg	(56.4 ~ 68.9)
Bone Minerals Content	3.41 kg	(3.16 ~ 3.85)

13. Muscle-Fat Analysis W, T

The Weight, SMM, SLM, and Body Fat Mass will be provided with normal ranges.

Muscle-Fat Analysis

Weight	59.1 kg	(43.9 ~ 59.5)
Skeletal Muscle Mass	19.5 kg	(19.5 ~ 23.9)
Soft Lean Mass	34.9 kg	(33.8 ~ 41.4)
Body Fat Mass	22.0 kg	(10.3 ~ 16.5)

1) Weight

This is the current weight of subject, you can check whether weight is in normal range.

2) Skeletal Muscle Mass

The muscle tissue in the body is composed of cardiac muscle, smooth muscle, and skeletal muscle. The Skeletal Muscle Mass is located in between bones and joints and can be moved voluntarily. Skeletal muscle can be significantly altered by physical activity. If the Skeletal Muscle Mass is at 100%, it means that there is enough muscle mass compared to your ideal weight.

3) Soft Lean Mass (SLM)

SLM is the sum of the Total Body Water, Protein, and Non-osseous Minerals.

4) Body Fat Mass

If the Body Fat Mass is within normal range, then it is sufficient compared to the ideal weight.

14. Obesity Evaluation W, R

BMI is calculated by the weight(kg) divided by height square(m²) and Percent Body Fat is the ratio of body fat mass compared to the weight.

Obesity Evaluation

BMI	18.0 kg/m²
PBF	25.6 %

15. Segmental Circumference B

Segmental Circumference shows the estimated circumference of 8 locations of the body.

Segmental Circumference

Neck	41.2 cm
Chest	4.14 cm
Abodmen	28.4 cm
Hip	61.1 cm
Right Arm	3.41 cm
Left Arm	3.41 cm
Right Thigh	57.5 cm
Left Thigh	56.7 cm

16. Waist-Hip Ratio B

WHR is calculated by dividing Waist Circumference by Hip Circumference. If the WHR is 0.90 or more in males and 0.85 or more in females, it is considered abdominal obesity.

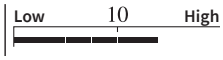
Waist-Hip Ratio 0.94 (0.75 ~ 0.85)

17. Visceral Fat Level B

Visceral Fat Level shows the amount of visceral fat as a numeric level. For example, 17cm² of Visceral fat area is level 10, so Level 5 means 51 to 60 cm² of visceral fat. Visceral Fat Level tends to increase with age, and if the Visceral Fat Level is 10 and above, the risk of lifestyle diseases increases.

Visceral Fat Level

14



18. Research Parameters B, W, C

1) Intracellular Water B, W

This is the water inside the cellular membrane comprises about 62% of the Total Body Water.

2) Extracellular Water B, C

This is the water outside the cellular membrane that comprises about 38% of the Total Body Water. Extracellular water includes both the water present in the interstitial fluid and plasma.

Research Parameters

Intracelluler Water	27.8 L	(25.6 ~ 31.4)
Extracelluler Water	17.2 L	(15.8 ~ 19.3)
Basal Metabolic Rate	1691 kcal	(1849 ~ 2178)
Waist-Hip Ratio	0.95	(0.80 ~ 0.90)
Body Cell Mass	39.8 kg	(36.8 ~ 45.0)

3) Skeletal Muscle Mass (B), (C), (R)

Skeletal muscles are attached to bones by tendons, and are responsible for voluntary movement. Skeletal Muscle Mass is easily affected by physical activity.

4) Basal Metabolic Rate (BMR) (B), (W), (C), (R)

BMR is the basic energy expenditure at a resting state to maintain temperature, breathing, heartbeat, and other vital functions for a 24-hour period. The standard of BMR calculation is based on carbon dioxide production and oxygen consumption, but InBody uses the fat free mass with the equation below.

BMR = 21.6 × FFM(kg) + 370 (FFM= Fat Free Mass, kg)

* **Ref.** John J Cunningham. Body composition as a determinant of energy expenditure: a synthetic review and proposed general prediction equation. Am J Clin Nutr: Vol.54:963-969,1991

BMR is related to the muscle mass. When the muscle mass increases, the BMR will also increase. If two individuals weigh the same but have different amounts of muscle mass, then the BMR will be higher for the person who has more muscle. Even with the same caloric intake, the individual with high BMR burns more and stores less as fat. When energy intake decreases during weight loss, the body decreases the BMR to prevent energy depletion. For this reason, it is better to increase your BMR through muscle gain rather than starving during weight loss.

5) Waist-Hip Ratio (B), (W), (C), (R)

WHR is calculated by dividing waist circumference by hip circumference. If the WHR is 0.90 or more in males and 0.85 or more in females, it is considered abdominal obesity.

Waist-Hip Ratio 0.94 (0.75 ~ 0.85)

6) Waist Circumference (B), (W), (R), (V)

Waist circumference is the estimated figure based on the body composition. If the waist is measured with the Y-Scope, the actual measured value will be shown.

Waist Circumference 85.0 cm

7) Visceral Fat Level (B), (W)

Visceral fat level represents the area of the visceral fat as a level. Each level is equivalent to 10 cm2, so the area of a Visceral Fat Level of 14 would be between 141 ~ 149 cm2. If VFL is over 10, which is equivalent to 100 cm2, there is an increased risk of developing lifestyle-related diseases. CT scan is a gold standard method of measuring visceral fat. In this case, the unification of the measurement position is an important criterion for reproducibility, and usually the navel or lumbar 4-5 is the standard.

Visceral Fat Level 14

8) Visceral Fat Area (B), (W), (R)

Visceral fat is the fat that is distributed between the internal organs and causes abdominal obesity. Body fat in our body can be divided into visceral fat, subcutaneous fat, and fat between muscles according to the location of distribution. Visceral Fat Area shows the cross-sectional area of visceral fat.

9) Obesity Degree B, W, R

Obesity Degree is the index for assessing obesity based on the height and weight of the subject. It is calculated by dividing the current weight by the ideal weight and multiplying it by 100. It is an easy-to-use method, but since it only considers the weight, it is not an absolute tool for obesity analysis.

Obesity Degree (%) = (Current/Ideal Weight) × 100

Obesity Degree 114% (90 ~ 110)

10) Bone Mineral Content B, W, R

Bone mineral content is the mineral mass in the bones, and DEXA, a bone density diagnostic equipment, is known for the gold standard. InBody estimates and provides bone mineral content based on the DEXA value.

Bone Mineral Content 3.41 kg (3.16 ~ 3.86)

11) Body Cell Mass B, W, C, R

Body cell mass is the sum of intracellular water and protein, which is the total amount of cells that make up a tissue. Body cell mass is one of the important criteria for nutritional evaluation, and it is a meaningful indicator in that it can evaluate the nutritional status of patients. BMI or fat free mass can also be an indicator, but it is possible to interpret inaccurately for groups like the elderly people or the patients with edema, water retention or ascites which result in the increased extracellular water and over-hydrated fat free mass. Therefore, it is recommended to use the Body Cell Mass, which excludes extracellular water, as an indicator of nutritional assessment.

Body Cell Mass 23.6 kg (23.4 ~ 28.6)

12) Arm Circumference B, W, R

The upper arm circumference is proportional to the muscle mass and is used to determine the nutritional status of protein. It is important to monitor the changes in values through periodic measurements.

Arm Circumference 30.5 cm

13) Arm Muscle Circumference B, W, R

Arm muscle circumference refers to the circumference of the muscle in the middle position of the upper arm. Arm muscle circumference is used as a tool for nutritional analysis since it is reflected by the individuals'nutritional status based on muscle mass.

Arm Muscle Circumference 26.0 cm

14) FFMI B, W, C, R

FFMI is the abbreviation of Fat Free Mass Index, which can be calculated bydividing the fat free mass by the height squared (m^2). It is one of indicators to evaluate nutritional status and muscle mass.

Fat Free Mass Index 15.1 kg/m^2

15) FMI (B, W, C, R)

FMI is the abbreviation of Fat Mass Index, which can be calculated by dividing the Fat Mass by the height squared (m^2). It is one of indicators to evaluate obesity staus along with Percent Body Fat and BMI.

Fat Mass Index	8.9 kg/m^2

16) SMI (B, W, C, R, V)

SMI is the abbreviation of Skeletal Muscle Index, which can be calculated by dividing the sum of appendicular lean mass by the square of the height (kg/m^2). It can be used to diagnose Sarcopenia which is the loss of muscle mass specifically related to aging. Sarcopenia is evaluated as 7.0 kg/m2 for men and 5.7 kg/m2 for women according to the Asian evaluation criteria.

SMI	6.0 kg/m^2

17) TBW/FFM (W, B)

TBW/FFM is the proportion of the body water to the fat free mass.

TBW/FFM	73.7 %

18) Recommended Calorie Intake (B)

Recommended Calorie Intake approximates how many calories an individual should consume per day based on their age, gender, height, weight and body composition.

Recommended Calorie Intake	2362 kcal

19) Waist-Height Ratio (V)

The Waist Height Ratio is one of the index used to determine abdominal obesity. It is useful to identify people with a high risk of cardiovascular and metabolic diseases. If the ratio is higher than 0.5 for males and 0.51 for females, it is considered abdominal obesity.

Waist-Height Ratio	0.54	(0.54 Under)

20) Body Adiposity Index (V)

This is one of the index for abdominal obesity that considers the distribution of fat and is obtained by dividing the hip circumference by (Height*1.5) squared and then subtracting 18. A value over 26.9 is considered abdominal obesity.

Body Adiposity Index	2.81	(26.9 Under)

21) Body Shape Index (V)

Body Shape Index is one of the index for abdominal obesity, which is calculated by using the height, waist circumference, and BMI. If the value is 0.076 or more, it is evaluated as abdominal obesity.

Body Shape Index	0.081	(0.076 Under)

22) Conicity Index (V)

This is one of the index for abdominal obesity that is waist circumference divided by the height and weight. If the value is above 1.25, it is classified as abdominal obesity.

Conicity Index	1.27	(1.25 Under)

23) Skeletal Muscle Mass/Visceral Fat Area

This is used to evaluate abdominal fat, especially for individuals with sarcopenic obesity that is calculated by dividing the lean mass by visceral fat area. If the ratio is higher than 0.19 for males and 0.15 for females, it is considered sarcopenic obesity.

Skeletal Muscle Mass/Visceral Fat Area 0.17 kg/m² (1.25 Under)

24) Protein R

It is the main component of muscle mass.

Protein 7.1 kg (7.0 ~ 8.6)

25) Minerals R

The total amount of mineral components dissolved in body fluid and bones.

Minerals 4.14 kg (3.83 ~ 4.69)

26) Percent Body Fat R

The percentage of body fat mass to body weight.

Percent Body Fat 31.7 % (10.0 ~ 20.0)

27) BMI R

BMI, or Body Mass Index, helps analyze appearance obesity. It is calculated by dividing the weight by the height squared.

Body Mass Index 26.7 kg/m² (18.5~ 25.0)

28) Soft Lean Mass(SLM) R

Soft Lean Mass is the fat free mass without osseous minerals.

Soft Lean Mass 57.7 kg (53.2 ~ 65.0)

29) SMM/WT

SMM/WT is the percentage of skeletal muscle mass to the body weight.

SMM/WT 38.3%

30) ECM/BCM

ECM/BCM is the ratio of extracellular mass to the body cell mass that can be used as an indicator of nutritional assessment.

- ECM(Extracelluar Mass): Fat Free Mass (FFM) excluding the Body Cell Mass (BCM)
- BCM(Body Cell Mass): Sum of Intracellular Water (ICW) and Protein.

ECM/BCM 0.535

31) TBW/WT

This is the percentage of total body water to the weight.

TBW/WT 50.3%

19. Calorie Expenditure of Exercise B

Calorie Expenditure of Exercise is the total calories burned that is consumed from 30 minutes of exercise based on the current weight.

20. Segmental Body Phase Angle B, W, C, R

This indicates the Phase Angle of each part of the body.

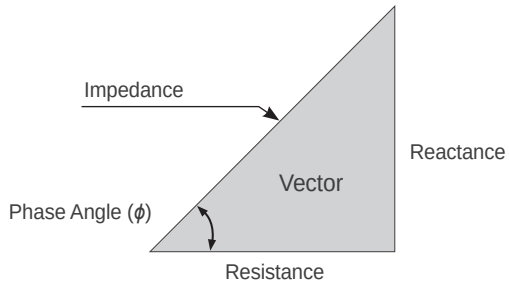
Segmental Body Phase Angle

$\phi(^\circ)$	RA	LA	TR	RL	LL
5 kHz	2.5	2.5	4.0	2.4	2.2
50 kHz	5.4	5.4	8.3	5.9	5.5
250 kHz	4.9	4.8	8.1	4.8	4.7

21. Impedance, Phase Angle B, W, C, R

The InBody is a device that measures body water and body composition based on the impedance value by sending weak alternating current throughout the body. Impedance is a term for the resistance that hinders the flow of the current and is largely divided into Resistance (R) and Reactance (Capacitive Reactance, Xc). Resistance and Reactance can be measured via the Impedance and Phase Angle. The relationship of Impedance, Resistance, and Reactance forms a trigonometric relationship.

Phase Angle of a resistor and capacitor in series



$$\text{Phase Angle } (\phi) = \arctan \frac{\text{Reactance}}{\text{Resistance}}$$

Impedance: this is the resistance that occurs when weak alternating current is applied to the human body. It is the vector sum of resistance and reactance. The impedance value decreases when there is a lot of body water and vice versa. InBody measures the impedance of the Right Arm (RA), Left Arm (LA), Trunk (TR), Right Leg (RL), and Left Leg (LL) for each frequency. Impedance values tend to decrease as the frequency increases. Phase Angle: It is proportional to Reactance, which represents the value of Reactance relative to the Resistance. Phase Angle is also related to the health status of the cell membrane. Strengthening of the cellular membrane and structural function will increase the Phase Angle, while damage or a decrease in function will result in a decrease in the Phase Angle.

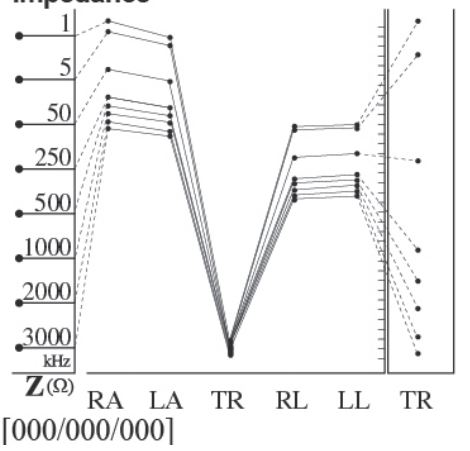
Whole Body Phase Angle

ϕ(°) 50 kHz	5.7°

Segmental Body Phase Angle

	RA	LA	TR	RL	LL
ϕ(°) 5 kHz	2.5	2.5	4.0	2.4	2.2
50 kHz	5.4	5.4	8.3	5.9	5.5
250 kHz	4.9	4.8	8.1	4.8	4.7

Impedance



22. Growth Score C

The Growth Score is a unique index for children created by InBody to help make it easier to understand the current body composition status and growth status. The Growth Score differs from InBody Score for adults that it not only considers body composition, but also height, weight, BMI, and so on. The score will be higher when the subject has a balanced body compoisition, taller height, and PBF closer to the normal range. On the contrary, the subject with short height and high PBF will have a lower Growth Score.

Growth Score

85 / 100 Points

* If tall and within great body comparison standards, the growth score may surpass 100 points.

23. Segmental Lean Analysis C

Segmental Lean Analysis shows the amount of lean mass in each body segment.

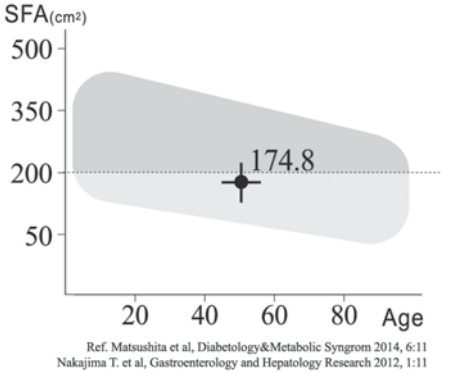
Segmental Lean Analysis

Right Arm	2.70 kg
Left Arm	2.84 kg
Trunk	23.0 kg
Right Leg	8.40 kg
Left Leg	8.38 kg

24. Subcutaneous Fat Area (Graph) V

This graph shows the area of subcutaneous fat. The gray side indicates how subcutaneous fat is distributed by age. As the age increases, you can see that the subcutaneous fat area decreases. In the graph, the subject's status is marked with (✛). The cut-off of the subcutaneous fat area is 200 cm².

Subcutaneous Fat Area



Ref. Matsushita et al, Diabetology&Metabolic Syngrom 2014, 6:11
Nakajima T. et al, Gastroenterology and Hepatology Research 2012, 1:11

25. Blood Pressure B, W, C, V

When the Blood Pressure Monitor is connected to the InBody, the measured values will be shown on the result sheet.

inbody.com

The power of InBody

InBody maintains a high brand position with the highest level of technology.

WC300 ATC Good Software reddot Award IF Design Award GoodDesign

Certifications obtained by InBody

InBody complies with the quality management system according to international standards. We satisfy country-specific regulatory requirements that apply to product safety and performance, and provide related services.

CE 1639 NAWI ISO9001 ISO13485 MDSAP GMP

InBody's Intellectual Property Rights

InBody owns patents and intellectual property rights around the world and provides products with high accurancy and reproducibillity based on this technology.

U.S patent China patent Japan patent Korea patent

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