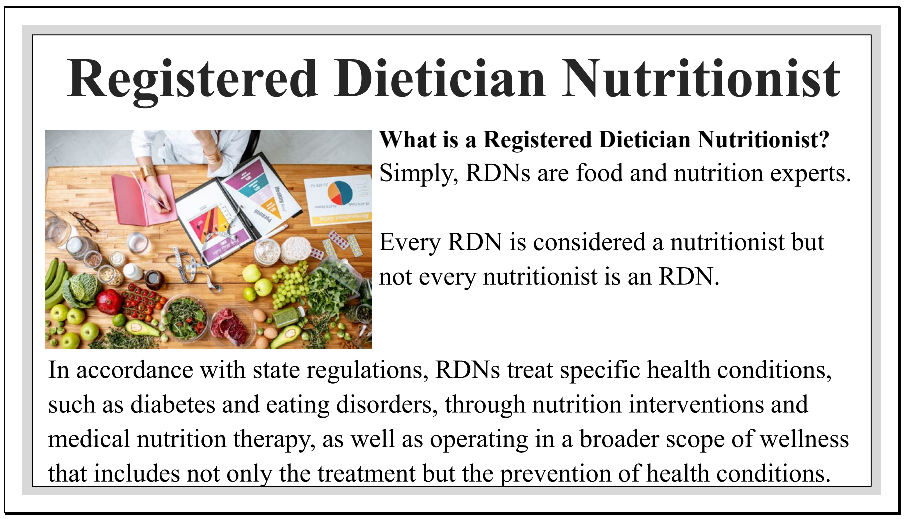
Slide 1

Hello! My name is Tim Garrett, and I am excited to talk to you about Health and Wellness. I am a graduate student finishing up my last semester toward a master's degree in Nutrition and Dietetics with the goal of becoming a Registered Dietician Nutritionist. I own Snap Fitness in Manchester and Transformation Wellness and Martial Arts. All right, let's get going.

Slide 2



What is a Registered Dietician Nutritionist?

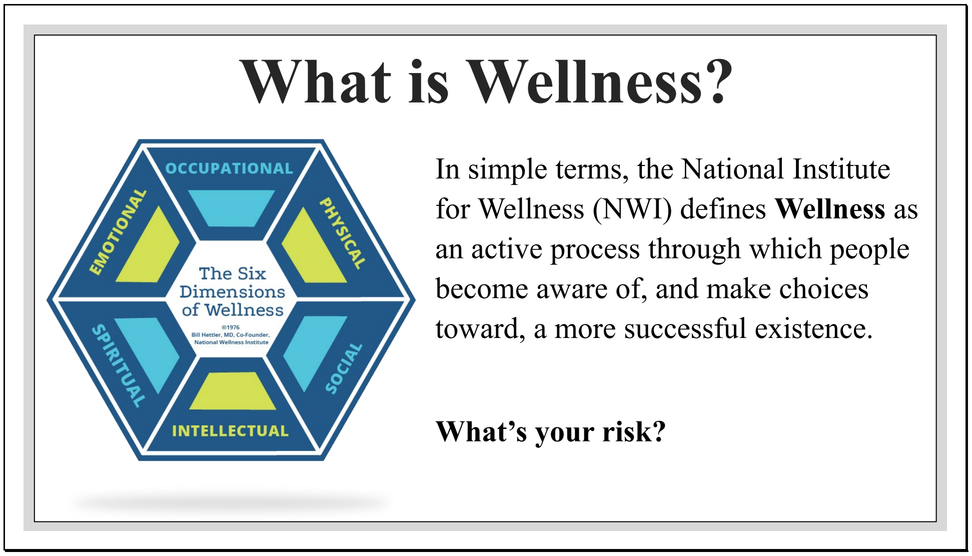
- Simply, RDNs are food and nutrition experts.
- Every RDN is considered a nutritionist but not every nutritionist is an RDN.
- In accordance with state regulations, RDNs treat specific health conditions, such as diabetes and eating disorders, through nutrition interventions and medical nutrition therapy, as well as operating in a broader scope of wellness that includes not only the treatment but the prevention of health conditions.

Additionally, RDNs must:

- Complete a minimum bachelor's degree, soon to be a master's degree, program approved by ACEND of the Academy of Nutrition and Dietetics
- Complete an ACEND-accredited supervised practice program, like an internship of no less than 900 hours.
- Must pass a national examination administered by the Commission on Dietetic Registration (CDR) and meet state requirements.
- Complete continuing professional educational requirements to maintain registration.

Now, all that aside, let's talk about Wellness, Disease risk, the Inbody 570, and Nutrition.

Slide 3



What is wellness?
In simple terms, the National Institute for Wellness (NWI) defines wellness as an active process through which people become aware of, and make choices toward, a more successful existence.

The six dimensions of wellness include the emotional, occupational, physical, social, intellectual, and spiritual dimensions. While addressing all six dimensions of wellness in our lives builds a holistic sense of wellness and fulfillment, I will be focusing primarily on the physical dimension and, in particular, health & disease risk.

Slide 4

According to the Centers for Disease Control and Prevention, Chronic diseases are defined broadly as conditions that last one year or more and require ongoing medical attention or limit activities of daily living or both. Chronic diseases such as heart disease, cancer, and diabetes are the leading causes of death and disability in the United States. They are also leading drivers of the nation's $4.1 trillion in annual healthcare costs.

Many chronic diseases are caused by a short list of risk behaviors:

- Tobacco use and exposure to secondhand smoke.
- Poor nutrition, including diets low in fruits and vegetables and high in sodium and saturated fats.
- Physical inactivity.
- Excessive alcohol use.

Slide 5

6 in ten adults in the US have a chronic disease, and four in ten adults in the US have two or more. The leading causes of death and disability and leading drivers of the nation's 4.1 $trillion in annual healthcare costs include heart disease, cancer, chronic lung disease, stroke, Alzheimer's disease, diabetes, and chronic kidney disease.

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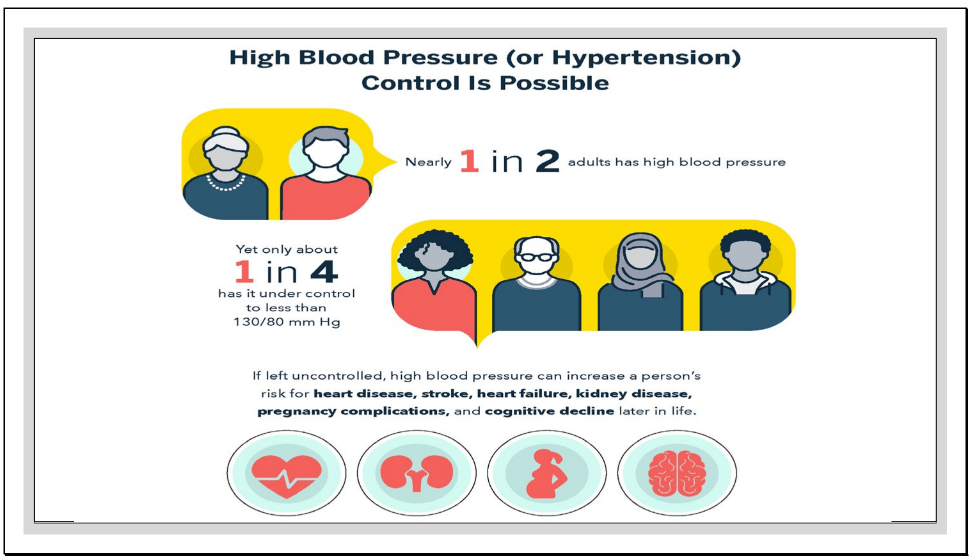

Nearly one in two adults have high blood pressure, yet only one in four has in under control to less than 130 / 80 mmHg.

Unfortunately, if left uncontrolled high blood pressure can increase a person's risk for heart disease, stroke, heart failure, kidney disease, pregnancy complications, and cognitive decline later in life.

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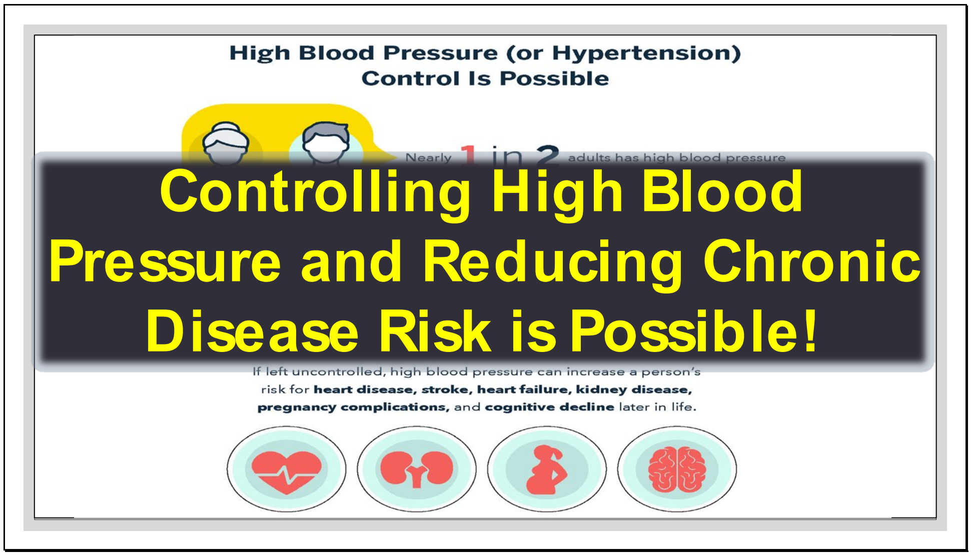


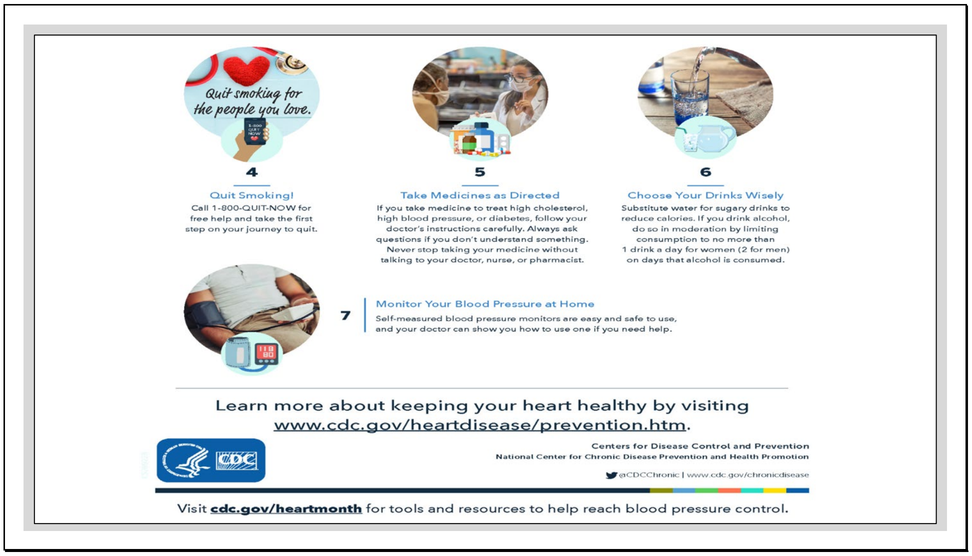
Controlling High Blood Pressure and Reducing Chronic Disease Risk is Possible!

Slide 8

Here are seven strategies to live a heart-healthy lifestyle that can lower the risk of heart disease and prevent other serious chronic conditions like type 2 diabetes and some types of cancer.

- Learn your health history and your risk. See your doctor for regular health and wellness check.
- Eat a healthy diet with more fruits, vegetables, whole grains, lean meats, and low-fat dairy products. Be sure to eat less salt, saturated fat, and added sugar.
- Move more and sit less by getting at least 150 minutes of moderate-intensity aerobic activity each week, plus muscle-strengthening activities at least two days per week. Maybe start with a few 20 to 30-minute walks through the park each week. The main point is to get started moving.

Slide 9



- Quit smoking! Call 1- 800-quit-now for free help.
- Take your medication as directed.
- Choose your drinks wisely and substitute water for sugary drinks to reduce calories. If it is better not to drink alcohol, but if you do, drink in moderation by limiting consumption to no more than one drink a day for women and no more than two drinks a day for men.
- Monitor your blood pressure at home.

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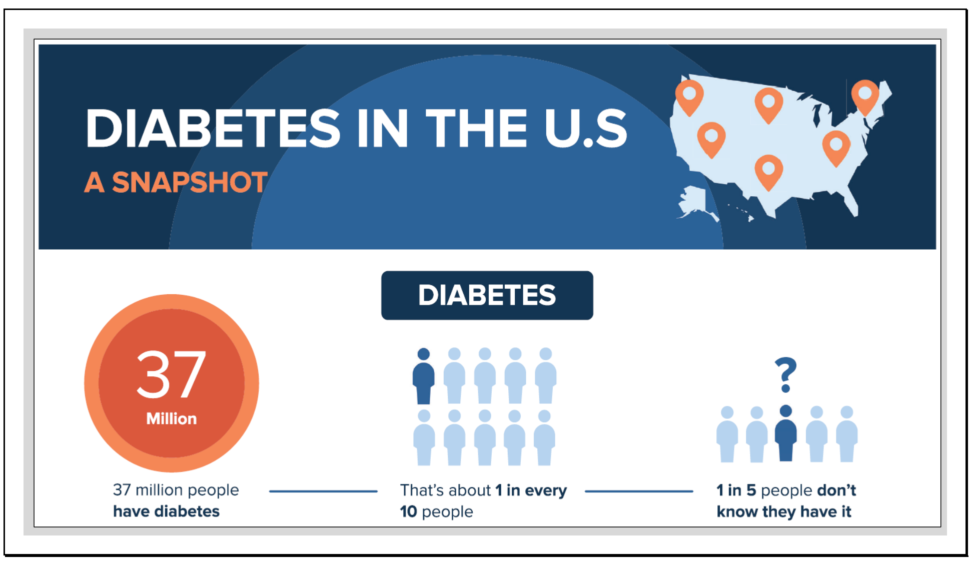
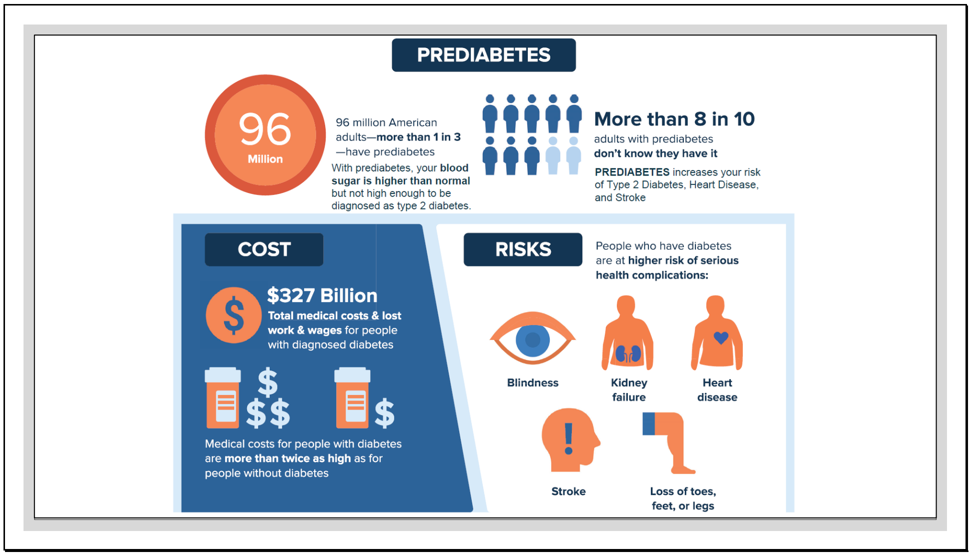


Diabetes is a significant chronic disease in the United States.
Over 37 million people have diabetes that's about one in every ten people.
Of the people that have diabetes, one in five don't know it.

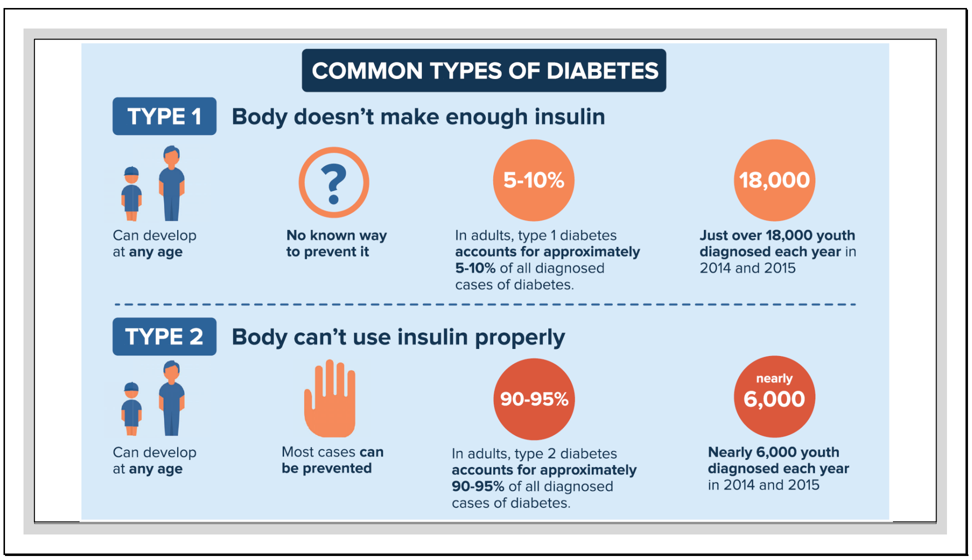
Slide 11



Over 96 million American adults, more than one in three, have prediabetes. In the case of prediabetes, your blood sugar is higher than normal but not high enough to be diagnosed as type 2 diabetes. Of those with prediabetes, 8 in 10 don't know they have it. Pre-diabetes increases your risk of type 2 diabetes, heart disease, and stroke.

Diabetes accounts for about 20% of our total healthcare costs, at $327 billion dollars.
People with diabetes have a higher risk of serious health complications such as blindness, kidney failure, heart disease, stroke, and loss of toes, feet, or legs.

Slide 12

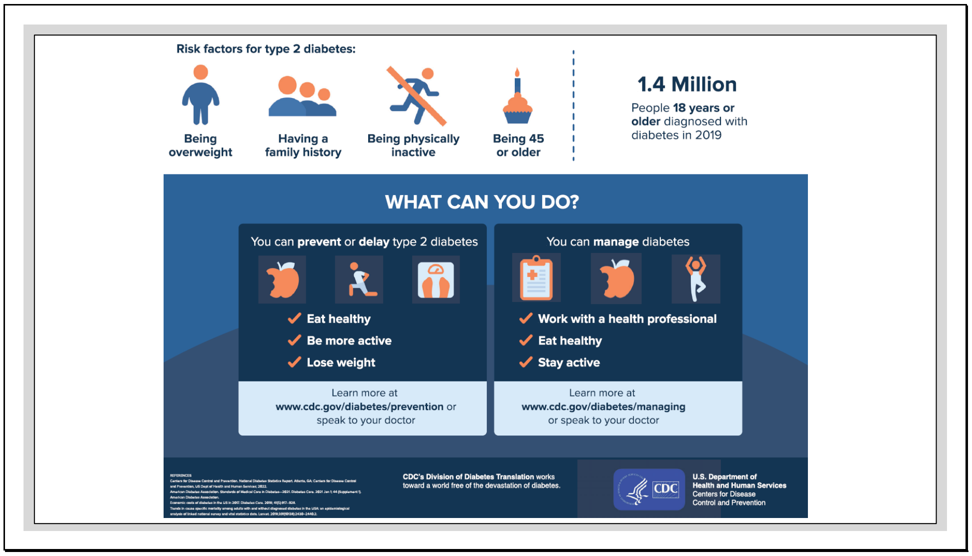


The most common types of diabetes are type 1 and type 2 diabetes.

In the case of type one diabetes, your body doesn't make enough insulin. Unfortunately, there's no known way to prevent type 1 diabetes. Type one diabetes accounts for five to 10% of diabetes cases.

With type 2 diabetes, your body cannot use insulin properly. Fortunately, in most cases, type 2 diabetes can be prevented or delayed. It makes up approximately 90 to 95% of diabetes cases.

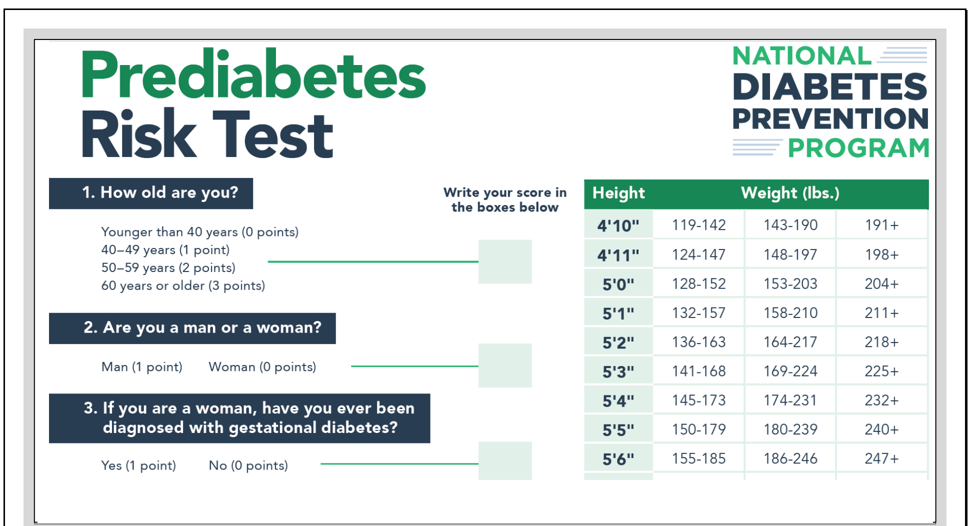
Slide 13



Risk factors for type 2 diabetes include being overweight, having a family history of type 2 diabetes, being physically inactive, and being over 45 years of age.

You can prevent or delay type 2 diabetes by eating healthy, being more active, and losing weight. You can manage diabetes by working with a health professional, eating healthy, and staying active.

Slide 14



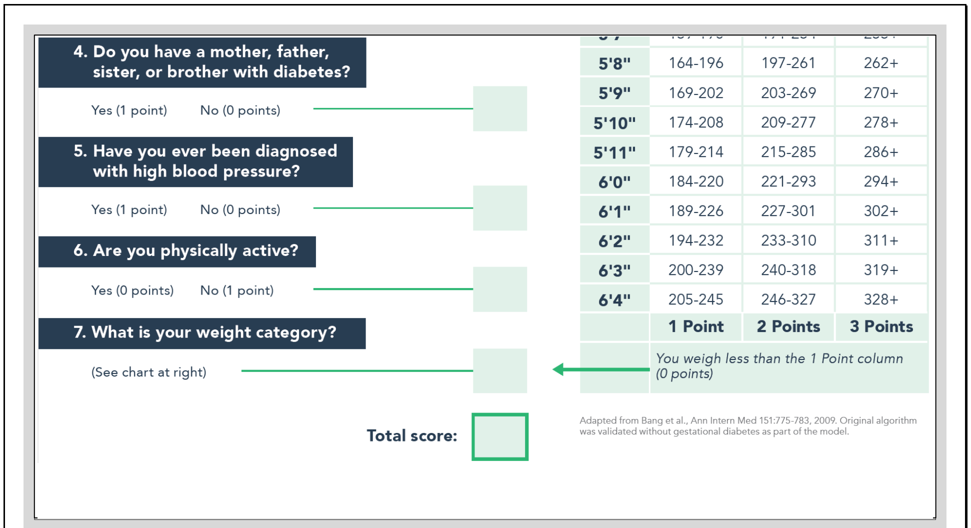
(Centers for Disease Control and Prevention, n.d.c.)

The CDC has a pre-diabetes risk test that is online or that you can print off to assess your own prediabetes risk.

The risk test consists of seven questions.

- The 1st question asks how old you are and adds points based on your age.
- The 2nd question adds a point based on gender.
- The 3rd question adds a point based on a woman's previous diagnosis of gestational diabetes.

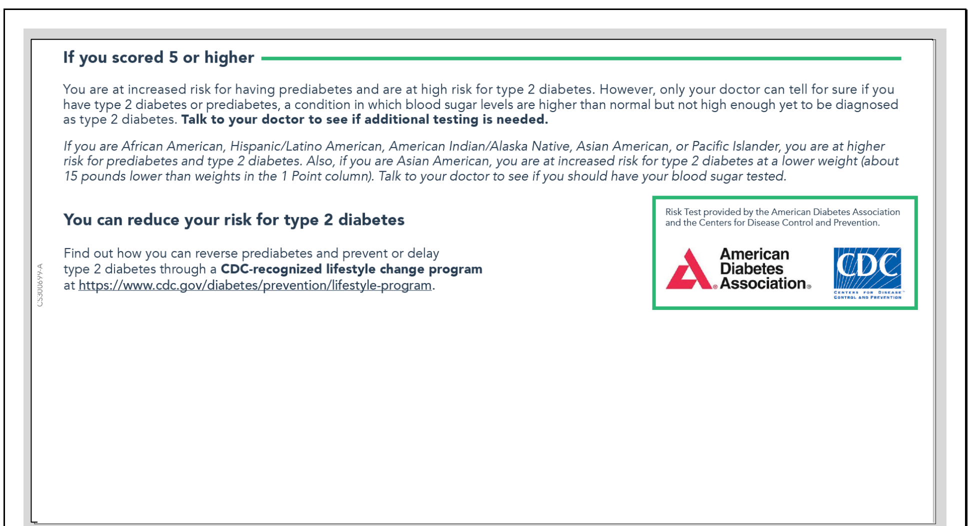
Slide 15



(Centers for Disease Control and Prevention, n.d.c.)

- The 4th question adds a point based on a family history of diabetes.
- The 5th question adds a point based on the diagnosis of high blood pressure.
- The 6th question adds a point based on the rating of physical activity. Do you get more than 150 minutes per week of moderate-intensity exercise and muscle-strengthening activities two days per week?
- The 7th question assigns up to three points based on the person's weight category. If someone is 5 foot 8 inches and 197 pounds, they will get two points.

Slide 16



(Centers for Disease Control and Prevention, n.d.c.)

If you accumulate more than five points, you are at an increased risk for having pre-diabetes and are at high risk for type 2 diabetes. However, only a doctor can tell you for sure if you have type 2 diabetes or prediabetes. You should talk to your doctor to see if additional testing is needed.

Slide 17

Prediabetes Risk Assessment Body Composition Addendum

The risk analysis tools developed by the Centers for Disease Control and Prevention (n.d.b.) as well as criteria established by the American Diabetes Association (2019) to determine prediabetes risk and suggested screening use body mass index (BMI) as an anthropometric measurement and significant risk factor for prediabetes and diabetes risk.

According to an article in BMJ Journal by Jo and Mainous III (2018):

1. Some people with a normal BMI (18.5–24.9 kg/m^2) and high body fat % (in men ≥25% and women ≥35%) are more prone to have abnormal blood glucose than those with a high BMI but a lower body fat %.
2. Abnormal blood glucose leads to prediabetes, diabetes, and other complications.
3. In the study, 64% of the population with normal BMI had a high % B.F. The study indicated the prevalence of ABG in a normal-weight group with a high % B.F was significantly higher than in the overweight group with a low % B.F. (Jo & Mainous III, 2018).

If your BMI is in range but your body fat % is high, then your body composition should be considered a risk factor. If you are uncertain about your risk, seek advice from a health care professional qualified to assess your risk or get screened for prediabetes to confirm your prediabetes status.

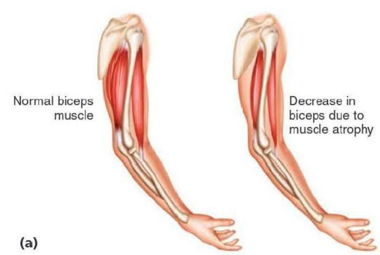
As a side note, I would like to point out that BMI may not always accurately assess risk.

- Some people may have a normal BMI, higher body fat %, and higher risk.
- Some people may have a higher BMI, lower body fat %, and lower risk.
- It is best to talk to your doctor.

Slide 18

Prediabetes Risk Assessment Body Composition Addendum

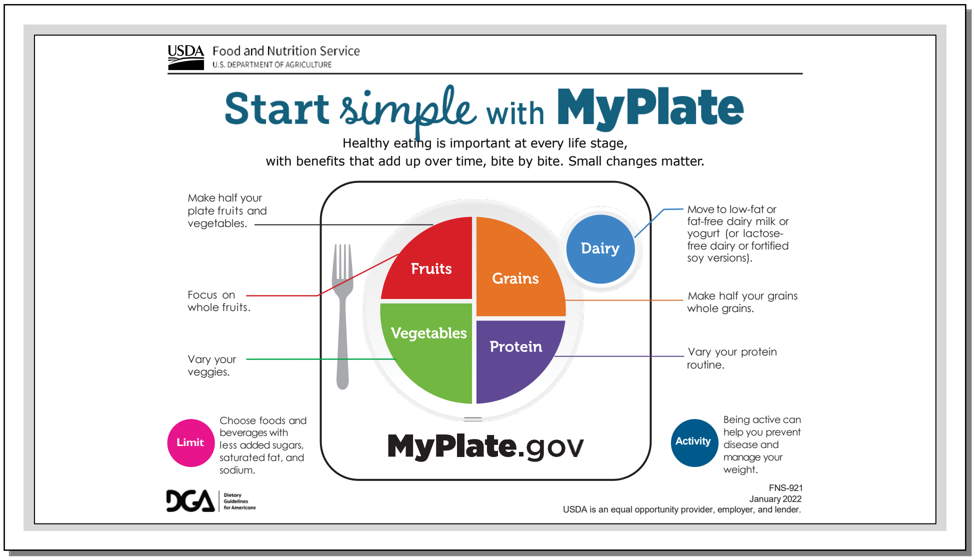
Normal biceps is healthier but weighs more.



(Nelms & Sucher, 2020)

The BMI of the normal biceps would be higher than the BMI of the biceps with reduced muscle mass.
Muscle mass weighs more than the same volume of fat mass.

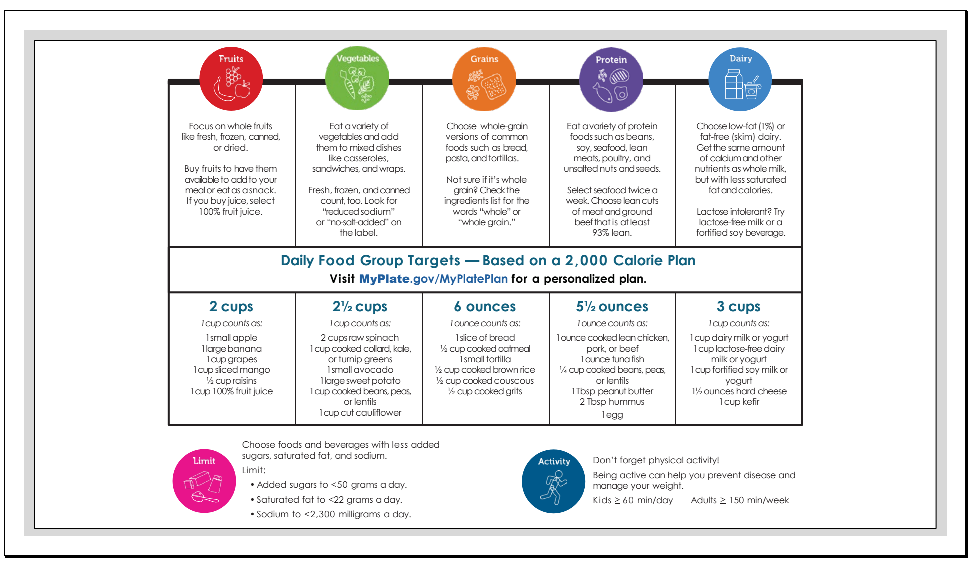
Slide 19



Some simple My Plate nutrition tips include:

- Make half your plate fruits and vegetables.
- Focus on whole fruits.
- Vary your vegetables.
- Choose foods and beverages with less added sugar, saturated fat, and sodium.
- Choose low-fat or fat-free Dairy Milk or yogurt (or lactose-free dairy or fortified soy versions.)
- Make half your grains whole grains.
- Vary your protein routine.
- Being active can help you prevent disease and manage your weight.

Slide 20

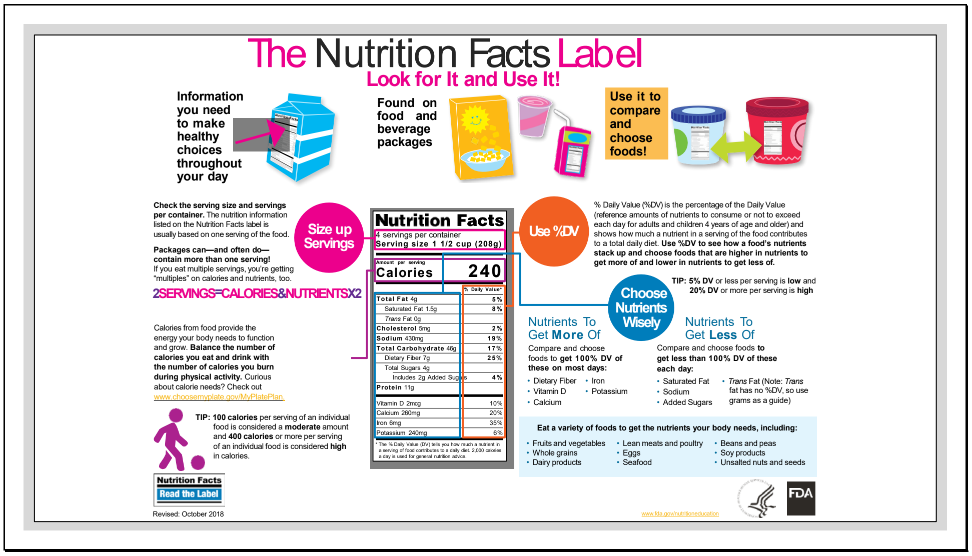


This is a sample 2000-calorie-per-day plan that includes the number of portions or servings for each food group.

- This includes 2 cups of fruits, 2 1/2 cups of vegetables, 6 ounces of grains, 5 1/2 ounces of protein, and three cups of dairy.
- Some key points Based on a 2000-calorie-per-day diet include keeping added sugars to less than 50 grams a day or less than 10% of your total daily caloric intake.
- Consume 28 grams of fiber per day.
- Saturated fats should be less than 22 grams a day.
- Sodium should be less than 2300 milligrams today.

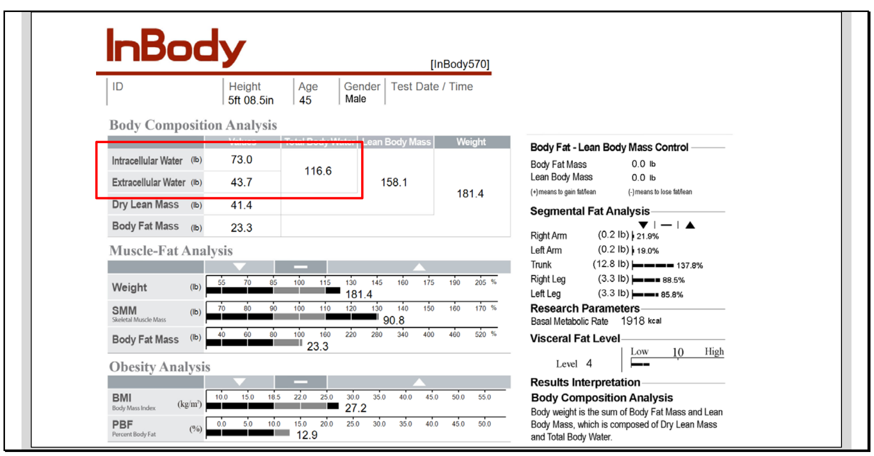
It's important not to forget physical activity, as we discussed previously, to achieve 150 minutes per week of moderate-intensity activity combined with two days a week of muscle-strengthening activities.

Slide 21



- The nutrition facts label is an amazing tool to help improve your nutrient intake.
- It is important to focus on the nutrients you need more of such as dietary fiber at 28 grams per day based on a 2000-calorie per day diet, vitamin D, calcium, iron, and potassium.
- You should attempt to get less of the following nutrients to include saturated fat, sodium, added sugars, and trans fats.
- Simply you should strive to eat a variety of foods to get the nutrients your body needs.
- It is important to focus on the nutrients you need more of, such as dietary fiber at 28 grams per day based on a 2000-calorie per day diet, vitamin D, calcium, iron, and potassium.
- You should attempt to get less of the following nutrients to include saturated fat, sodium, added sugars, and trans fats.
- Simply you should strive to eat a variety of foods to get the nutrients your body needs.

Slide 22



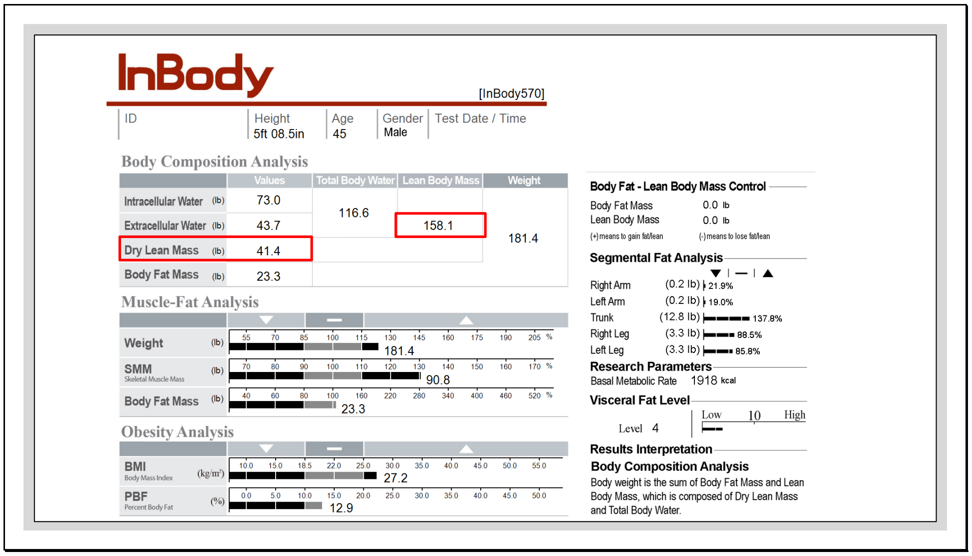
The information provided is to be used for educational/informational purposes only and does not constitute medical advice. Only certified medical & health professionals may diagnose patients and provide such advice.

- The InBody 570 provides accurate **Body Composition Analysis** in less than 45 seconds, providing information about visceral fat, segmental fat, intracellular water, and extracellular water.

Intracellular and Extracellular Water

- At the top, you have Intracellular Water (body water inside cells) and Extracellular Water (body water outside cells), which comprise Total Body Water.
- If you notice an increase in ECW, but not ICW, this could be due to acute inflammation from overtraining.

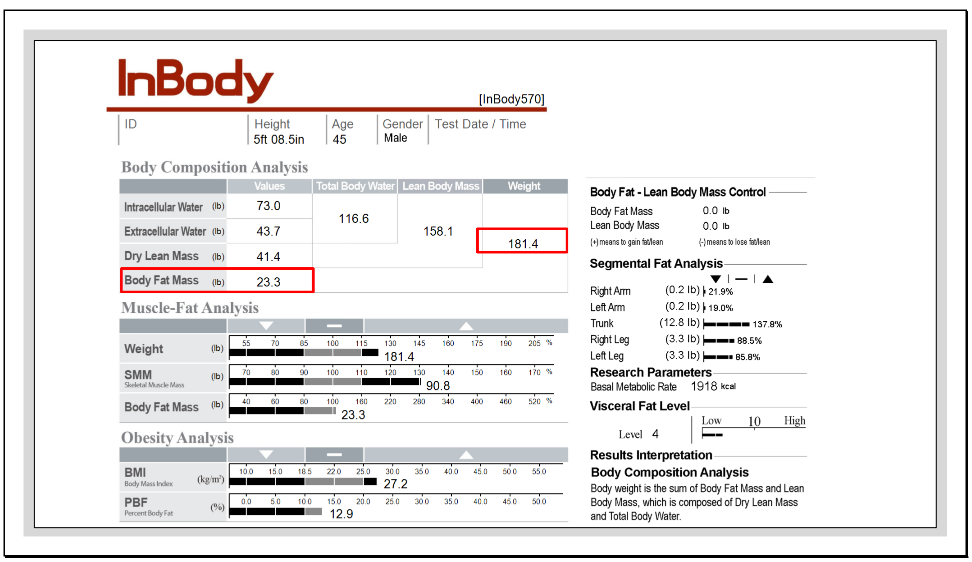
Slide 23



Dry Lean Mass

- This value is the weight of the protein and mineral content in your body.
- Because protein makes up most of your muscle, and Dry Lean Mass excludes body water, if your Dry Lean Mass increases, then this is generally a sign that you have gained muscle mass!
- Displayed in the second column from the right, Lean Body Mass (LBM) is the sum of your ICW, ECW, and Dry Lean Mass. LBM is the weight of everything in your body except fat; for this reason, it is also called Fat-Free Mass. Lean Body Mass includes muscle, water, bones, and organs.
- Usually, increases in LBM reflect an increase in muscle mass (which you can also see as an increase in Dry Lean Mass) and is considered an improvement in body composition. However, people who do not maintain normal body-water ratios may have increased LBM due to swelling caused by strenuous exercise or activity.

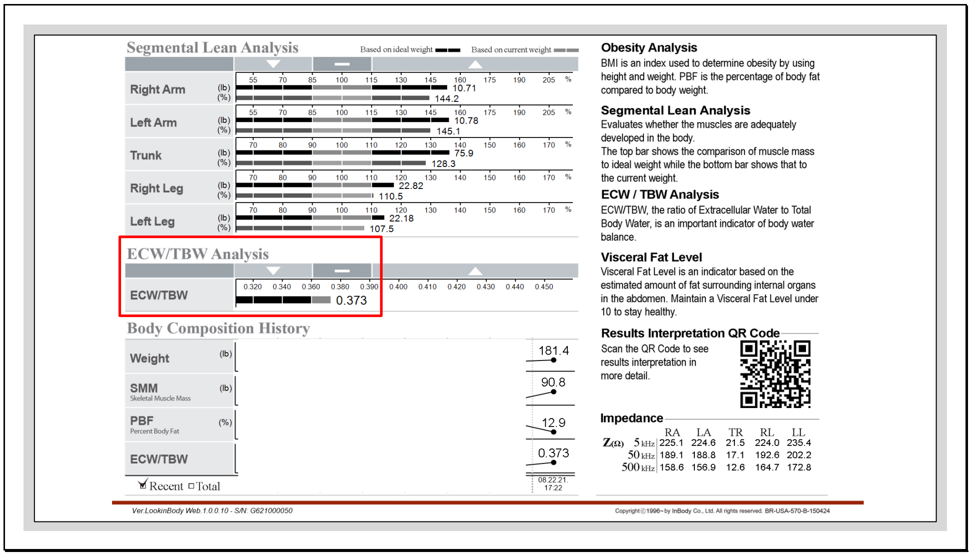
Slide 24



Body Fat Mass

- Below Dry Lean Mass is Body Fat Mass.
- This value reveals how much body fat, both surface level (subcutaneous) and internal (visceral), makes up your weight.
- The Body Fat Mass with the Lean Body Mass makes up your total body weight.

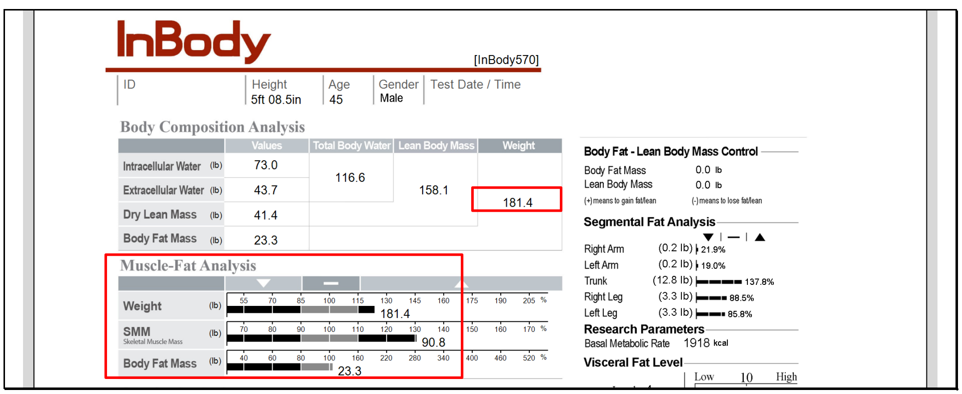
Slide 25



ECW/TBW Analysis

- ECW/TBW is a measure of compartmental fluid distribution and shows, as a ratio, how much of your total body water is extracellular.
- Taking multiple InBody Tests will establish your normal fluid status and help determine any imbalances. As a general guide, check to see that your ECW/TBW is below 0.390.
- This graph lets you quickly understand if you have occasional inflammation or swelling in your body resulting from strenuous exercise or activity. You can also use this to give context to LBM. High LBM and a high ECW/TBW ratio usually indicate excess body water—not just muscle.

Slide 26



Muscle-Fat Analysis

- This section shows how your Weight, Skeletal Muscle Mass, and Body Fat Mass compared to the healthy average range of people of the same height and gender.
- With Muscle-Fat Analysis, you get a better understanding of where your current body composition is so you can make any changes to get it to where you would like it to be.

WEIGHT - this is your Total Body Weight.

SKELETAL MUSCLE MASS (SMM) - this is the total weight of your Skeletal Muscle Mass (SMM).

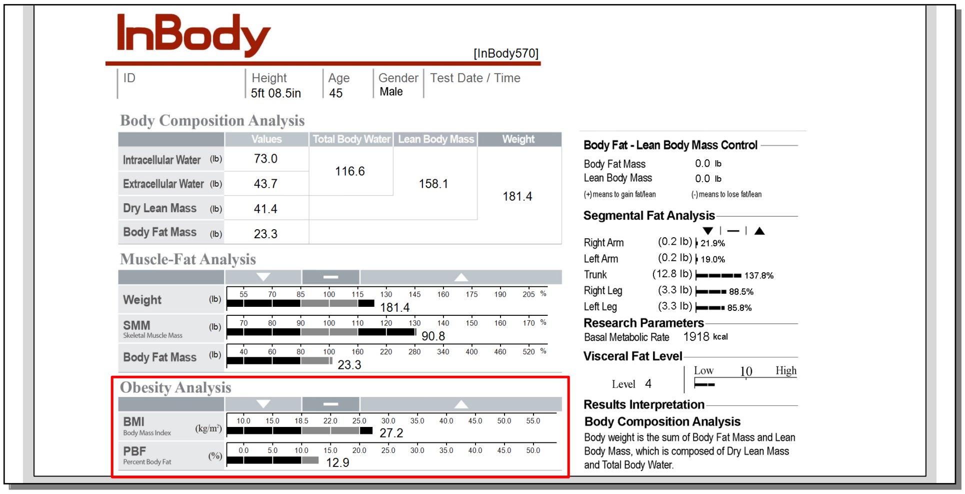
- SMM is muscle that can be grown and developed through exercise.
- Unlike Lean Body Mass, which includes everything except body fat, you can confidently interpret an increase in SMM as muscle gain.

BODY FAT MASS

- This is how much body fat you have (both the surface level and internal fat).

The Muscle-Fat Analysis also tells you whether you have a healthy balance of SMM and Body Fat Mass in respect to your weight.

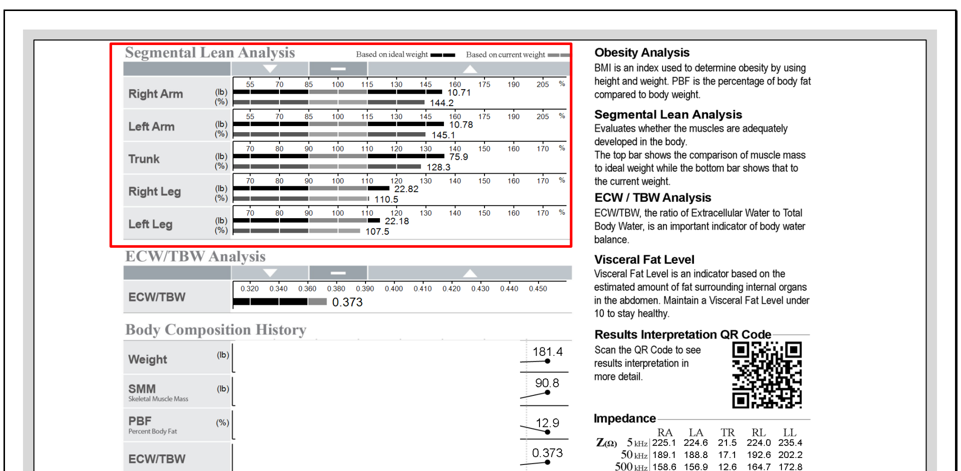
Slide 27



Obesity Analysis

- This section displays your body fat percentage, or Percent Body Fat (PBF), and Body Mass Index (BMI), as well as the healthy ranges for these measurements.
- When assessing your current obesity level and the associated health risks, use Percent Body Fat (a.k.a. Body Fat Percentage) because it reveals how much of your weight is fat. BMI is a poor indicator of obesity risk but is on the Result Sheet for reference purposes.
- For men, the healthy range is set at between 10-20%.
- For women, the healthy range is set at between 18-28%.

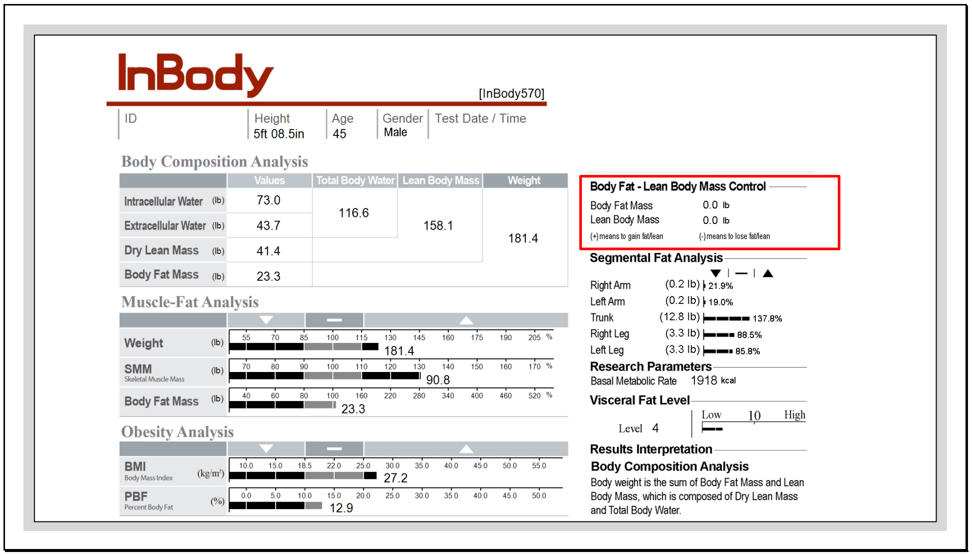
Slide 28



Segmental Lean Analysis displays your Lean Body Mass (Fat-Free Mass) in all body segments in pounds and its sufficiency to support your body weight as a percentage.

- The InBody divides your body into five body segments: your arms, legs, and trunk (torso), or the area between your neck, arms, and legs. The data for each body segment is displayed as two bars.
- TOP SECTION The top value shows how much Lean Body Mass (Fat-Free Mass) you have in pounds for each body segment.
  - Just like with the Muscle-Fat Analysis, the top bar of the Segmental Lean Analysis compares the pounds of Lean Body Mass against the average expected amount of Lean Body Mass for your height. You should always work to be at 100% or higher.
- BOTTOM SECTION The bottom value compares your Lean Body Mass against your measured body weight, which helps you determine if you have enough Lean Body Mass to support your body weight, where 100% is sufficient.

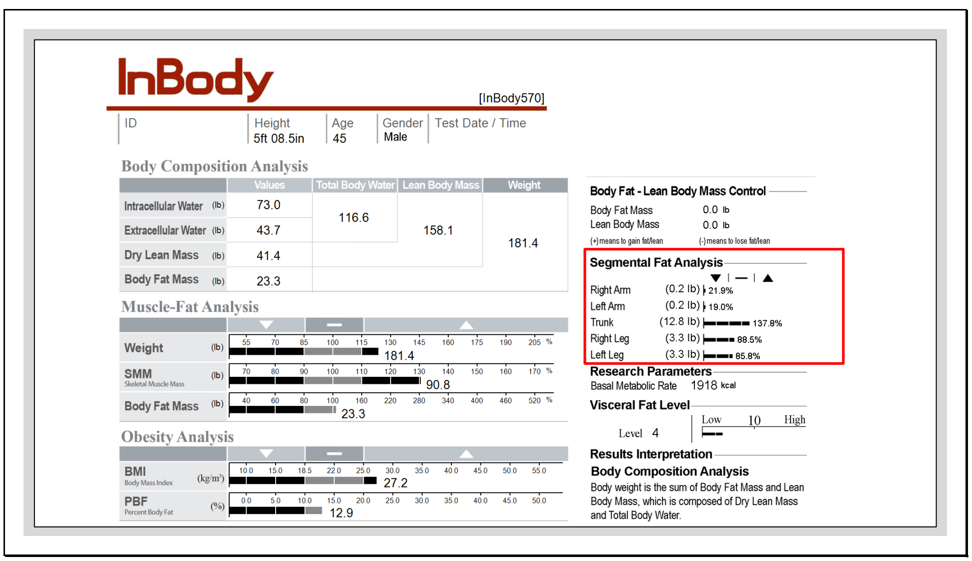
Slide 29



BODY FAT-LEAN BODY MASS CONTROL

- This section makes it very easy for you to set health and fitness goals and help you achieve the recommended body fat percentage for your gender (15% for men, 23% for women).
- Depending on your current Muscle-Fat balance, this Result Sheet output will recommend adjusting Body Fat Mass and/or LBM to reach the target PBF.
- If you have too much Body Fat Mass, the InBody will advise losing a certain amount of fat mass and maintaining or increasing LBM. The InBody will never recommend losing LBM.

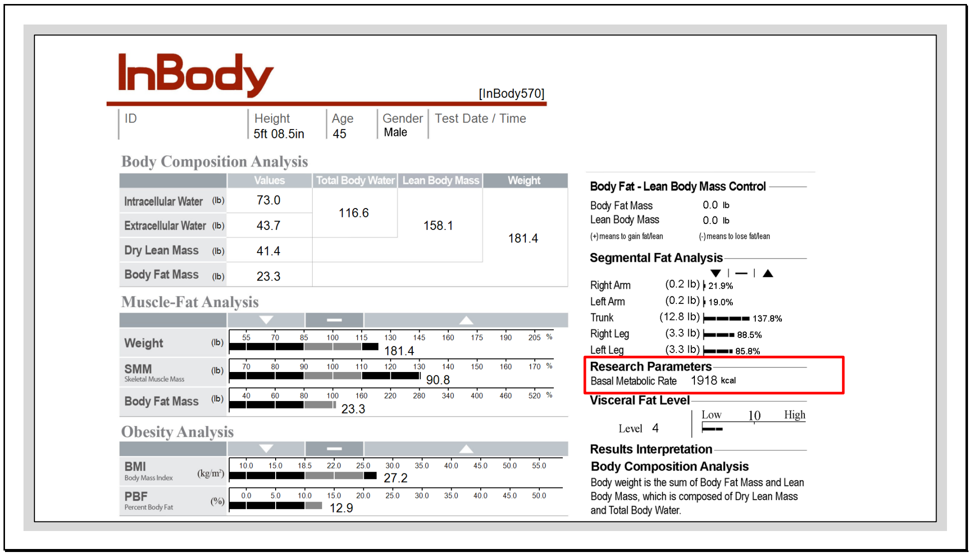
Slide 30



SEGMENTAL FAT ANALYSIS

In the example above, the person has 12.8 pounds of body fat in their Trunk. For a person of their height and gender, that's 137.8%, or 37.8%, more body fat than the average person of the same height and gender. This is based on your estimated ideal body weight and does not consider if you are more muscular than average.

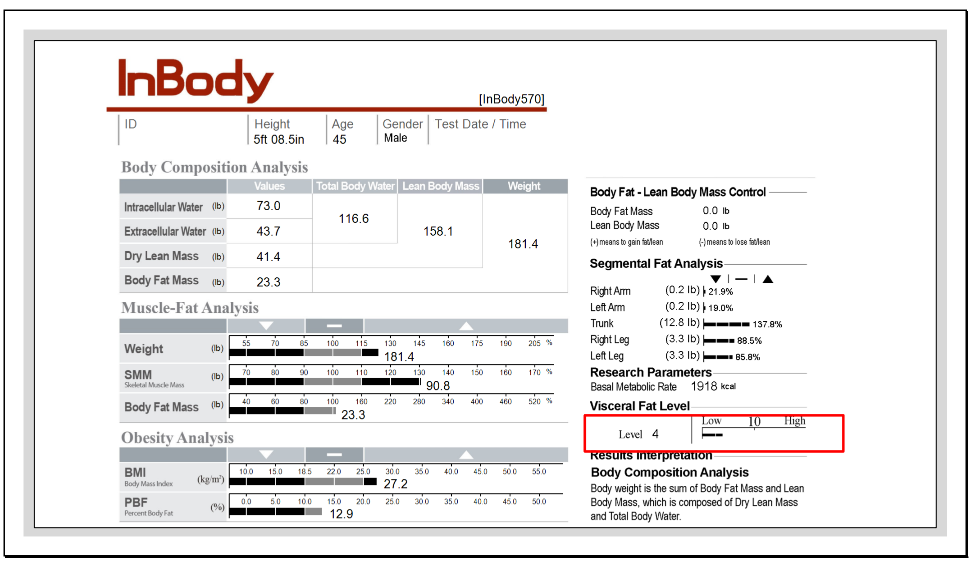
Slide 31



BASAL METABOLIC RATE

- The Basal Metabolic Rate, or BMR, is the calories you need for your basic essential functions. This value allows you to work with your dietician or health care professional to create a nutritional plan, which is key to reaching your body composition goals.
- You may think that your BMR is the calories you should eat in a day, but this is NOT the case. BMR does not take into account any calories needed to perform daily activities, and so your actual caloric need for the day is likely much higher than your BMR.

Slide 32



VISCERAL FAT LEVEL

- As you may know, there are two main types of body fat: subcutaneous and visceral. The Visceral Fat chart allows you to determine how much harmful visceral fat you have.
- The “10” or Level 10 in the middle of the chart represents 100 cm2 of the visceral fat area. Your actual visceral fat number is shown to the left of the chart. The level shown above is level 4.
- Try to stay at or below level 10 to maintain a healthy fat balance.

Slide 33

- The InBody Test should be performed on an empty stomach.

  Blood is concentrated in the digestive tract after food intake, which increases the blood flow. Due to an increase in the blood flow, there will be a significant decrease in the impedance value which will cause the body composition value to come out different from that of an empty stomach. The blood flow will return to the normal state in 2~4 hours.

- The InBody Test should be performed post restroom.

  InBody measures Body Fat Mass (BFM) by subtracting the measured FFM from the total body weight. If you feel that you should empty out your stomach before performing an InBody test, please do so. Food intake before the test can affect your weight and measurement values.

- To accurately measure the total body weight, dress light as possible.

  The InBody measures Body Fat Mass (BFM) by subtracting the measured FFM from the total body weight. Since clothes can affect the total body weight, recommendation would be wearing light clothes when performing an InBody Test.

- The InBody Test should be performed before exercising.

  When exercising, the blood flow will increase, the body temperature will rise and the impedance value will decrease due to vasodilation (widening of blood vessels) which occurs in the process of heat dissipation to lower the body temperature. This might cause the body composition result to come out differently from the actual value. The blood flow returns to normal state in 30 minutes upto an hour. Since this may vary by individual or exercise routine, it is recommended to perform the InBody Test before exercising.

- The InBody Test should be performed before taking a shower.

  Taking a shower or a bath will temporarily increase the body temperature and the body will then expand the skin vessels, which will cause an increase in the blood flow to reduce the elevated body temperature. This will also cause a decrease in the impedance value and the body composition values will come out differently from the actual. Therefore it is best to perform the InBody Test before taking a shower or a bath.

Slide 34

- The test should be performed barefoot.

  The InBody analyzes the body composition by measuring the impedance (resistance) by allowing weak alternating current to pass through the body. To measure the impedance, direct skin contact of the hands and feet should be made on the 8 point tactile electrodes. Socks and stockings will cause interference and may disrupt the correct body balance measurement values.

- Keep the arms away from the body.

  The InBody divides the body into five cylinders (Right Arm, Left Arm, Trunk, Right Leg, Left Leg) and measures by region. When there is contact between the arms and the trunk, the impedance value will decrease which could lead to an inaccurate body composition result.

- Keep the arms straight.

  The alternating current tends to flow through the shortest path. Bent-arm posture will result in lower impedance and PBF than the extended-arm posture.

Slide 35

Any Questions?

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