

- Three types of nutrients provide energy
 - protein
 - Carbohydrates
 - fats
- **Carbohydrates:** Starches and sugars found in foods which provide your body's main source of energy.
- you should get 45 - 60 % of your calories from carbs
- Three types:
 - simple - Sugars such as fructose and lactose found in fruit and milk.
 - complex- starches, these are long chains of sugars linked together (grains, pasta, beans, root vegetables..)
 - The difference in simple and complex is in how quickly they are digested and their chemical makeup.
 - fiber- complex carb that the body cannot digest. It helps move waste throughout your digestive system.
 - help you feel full and can prevent cancer, heart disease and type 2 diabetes
 - Girls - 28grams/day boys - 38 grams/day
 - fruits, vegetables, whole grains, nuts, seeds
 - Your body uses Carbs by breaking them down to their simplest forms. Usually they are broken into a simple sugar called glucose which is the main source of fuel for the body. It can also be stored in tissue and used at a later time. (weight gain)
- Carbs: <https://www.youtube.com/watch?v=-fSt7aWqE>
- **Protein:** nutrients the body uses to build and maintain its cells and tissues.
- Your body uses 20 amino acids. 11 are produced by your body and called non-essential, the other 9 come from foods you eat and are called essential.
- meat, eggs, dairy products, and soy are called complete proteins because they contain all 9 essential amino acids.
- You can get all 9 from eating a variety of nuts, beans and vegetables.
- Protein is the basic building material of your body cells, muscles, bones, skin and internal organs.
- Protein does a variety of other things as well, for example. Hemoglobin in your blood carries oxygen in your bloodstream to other parts of your body.
- Protein can also provide energy but takes much longer for your body to break down so is not an ideal source for energy.
- boys - 52 grams/day girls - 46 grams/day
- Protein: https://www.youtube.com/watch?annotation_id=annotation.927023009&feature=iv&src_vid=-fSt7aWqE&v=CzBGa8KnM3Q
- **Fats:**
- Three types of fat:

- Saturated: More saturated with Hydrogen molecules, Less healthy fat
- Unsaturated: Less saturated with Hydrogen molecules. Healthier Fat, Vegetable oils, nuts and seeds
- Trans Fat: Formed by a process of hydrogenation, the oils solidify. They raise cholesterol and increase risk of heart disease
- Your body needs a certain amount of fat but eating too much can result in weight gain.
- Fats provide energy, help brain development, blood clotting and controlling inflammation.
- Calories not used are stored as fat deposits called adipose tissue.
- Eating saturated fats and trans fat increase the level of cholesterol which is a waxy fat like substance in your blood stream.
- Fat takes 100 times longer to metabolize than Carbohydrates
- Fats can be used for energy during endurance activities
- Teens should consume less than 25% - 30% of their diet in fats
- Vitamins are compounds found in foods that help regulate many body functions
- Vitamin C, Folic Acid, and B Vitamins are water soluble which means they are easily dissolved in the digestive process and pass into the bloodstream. The body doesn't store these vitamins. Unused vitamins are removed by the kidneys
- Vitamin A, D, E, K are fat soluble which means that they are stored in body fat for later use. If consumed in large amounts, they can be stored and eventually become harmful.
- Common Vitamins:
 - A- night vision, stimulates production of white blood cells, regulates cell growth, repairs bones and tissue, aids immunity, maintains healthy skin.
 - Carrots, Sweet Potatoes, Tomatoes, Leafy vegetables, fish, liver, fortified milk and cereal, egg yolks
 - D - needed for building bones, aids immune function, regulates cell growth
 - fortified cereals and dairy products, fatty fish like salmon and tuna, sunlight
 - E - Protects Cells, aids blood flow, helps repair body tissue
 - Fish, milk, eggs, veg. oil, fruits, nuts, peas, beans, broccoli, spinach, fortified cereal
 - K - essential for blood clotting, aids bone formation
 - leafy vegetables, veg. oil, cheese, broccoli, tomatoes
 - B₁ - Helps use carbs to produce energy, promotes health of nervous system
 - lean pork, liver, enriched and whole grain cereal
 - B₂ - Helps use carbs, protein and fat, helps maintain healthy skin
 - lean beef, pork, organ meats, legumes, eggs, cheese, milk, nuts, enriched grain products
 - B₃ - helps body process proteins and fats, maintains health of skin, nervous system and digestive system
 - liver, poultry, fish, beef, peanuts, beans, enriched grain

- B6 - helps body use protein and fat, supports immune and nervous sys, helps blood carry oxygen, helps maintain blood sugar, breaks down iron and copper
- organ meats, pork, beef, poultry, fish, eggs, peanuts, bananas, carrots

Water-Soluble Vitamins		
B₁ (thiamine) Teen female: 1.0 mg Teen male: 1.2 mg	helps the body use carbohydrates for energy; promotes health of nervous system	enriched and whole-grain cereal products, lean pork, liver
B₂ (riboflavin) Teen female: 1.0 mg Teen male: 1.3 mg	helps the body process carbohydrates, proteins, and fats; helps maintain healthy skin	lean beef, pork, organ meats, legumes, eggs, cheese, milk, nuts, enriched grain products
B₃ (niacin) Teen female: 14 mg Teen male: 16 mg	helps body process proteins and fats; maintains health of skin, nervous system, and digestive system	liver, poultry, fish, beef, peanuts, beans, enriched grain products
B₆ Teen female: 1.2 mg Teen male: 1.3 mg	helps body use proteins and fats; supports immune and nervous systems; helps blood carry oxygen to body tissues; helps break down copper and iron; prevents one type of anemia; helps maintain normal blood sugar levels	organ meats, pork, beef, poultry, fish, eggs, peanuts, bananas, carrots, fortified cereals, whole grains
B₁₂ (cobalamin) Teen female: 2.4 mcg Teen male: 2.4 mcg	maintains healthy nerve cells and red blood cells; needed for formation of genetic material in cells; prevents one type of anemia	liver, fish, poultry, clams, sardines, flounder, herring, eggs, milk, other dairy foods, fortified cereals
C (ascorbic acid) Teen female: 65 mg Teen male: 75 mg	protects against infection; promotes healthy bones, teeth, gums, and blood vessels; helps form connective tissue; helps heal wounds	citrus fruits and juices, berries, peppers, tomatoes, broccoli, spinach, potatoes
Folic acid (folate) Teen female: 400 mcg Teen male: 400 mcg	helps body form and maintain new cells; reduces risk of birth defects	dark green leafy vegetables, dry beans and peas, oranges, fortified cereals and other grain products

- Minerals are elements found in food that are used by the body.
- Your body cannot produce minerals so you must get them from food.
- One very important vitamin is calcium which promotes bone health.
- Eating foods high in calcium can help prevent osteoporosis
- Osteoporosis - a condition in which the bones become fragile and break easily. It is most common in women over the age of 50
- You can prevent this now because bone mass builds most rapidly

Figure 10.7 Minerals

Mineral/Amount Needed Per Day by Teens Ages 14 to 18	Role in Body	Food Sources
Calcium Teen female: 1,300 mg Teen male: 1,300 mg	forms bones and teeth; aids blood clotting; assists muscle and nerve function; reduces risk of osteoporosis	dairy products, calcium-fortified juice, calcium-fortified soy milk and tofu, corn tortillas, Chinese cabbage, broccoli, kale
Phosphorus Teen female: 1,250 mg Teen male: 1,250 mg	produces energy; maintains healthy bones	dairy products, peas, meat, eggs, some cereals and breads
Magnesium Teen female: 360 mg Teen male: 410 mg	maintains normal muscle and nerve function; sustains regular heartbeat; aids in bone growth and energy production	meat, milk, green leafy vegetables, whole grains, nuts
Iron Teen female: 15 mg Teen male: 11 mg	part of a compound in the red blood cells needed for carrying oxygen; aids in energy use; supports immune system	meat, poultry, beans, fortified grain products

<https://www.youtube.com/watch?v=ISZLTJH5lYg>

Water

Osteoporosis is most common in women over the age of 50. You can take action now to prevent the likelihood that you will develop osteoporosis when you're older. Bone mass builds up most rapidly between the ages of ten and 20, reaching its peak around age 30. Eating plenty of calcium-rich foods as a teen can protect your health years down the road.

Water

Water is essential for most body functions. All of the body cells contain water. Water's functions include

- moving food through the digestive system.
- digesting carbohydrates and protein, and aiding other chemical **reactions** in the body.
- transporting nutrients and removing wastes.
- storing and releasing heat.
- cooling the body through perspiration.
- cushioning the eyes, brain, and spinal cord.
- lubricating the joints.

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Role in Body	Food Sources

- Metabolism: the process by which your body breaks down substances and gets energy from food.
- Traditional weight loss theory states:
 - It takes about 3,500 calories to equal one pound of fat
 - If you consume 500 fewer calories than you use each day, you will lose 1 pound a week.
- It is more complex than that as we will see
- Body Composition: The ratio of fat to lean muscle in your body
 - Body Mass Index: a measure of body weight relative to height
 - Bioelectric impedance
 - Hydrostatic weighing
- Being overweight can lead to diseases such as:

- heart disease
- cancer
- type 2 diabetes
- arthritis
- asthma
- gallbladder disease
- Being too thin can also cause problems. You can become deficient in nutrients your body needs to function.
- Obese: having an excess of body fat
- underweight: below the standard weight range for your height
- Statistics:
 - % of american adults are considered to be overweight or obese
 - 95% of diets fail and most will regain their lost weight in 1-5 years
 - 75% of American women surveyed endorse unhealthy thoughts, feelings or behaviors related to food or their bodies
 - 91% of women recently surveyed on a college campus had attempted to control their weight through dieting, 22% dieted "often" or "always"
 - Childhood obesity has tripled since the '80s when America first called out its "War Against Obesity"
 - At least 10 million females and 1 million males are fighting a life and death battle with an eating disorder and million more are struggling with binge eating disorder
- Body image: the way you see your body
- *What are some factors that influence how you think about your body?*
- *What are some eating disorders that you have heard of?*
 - Anorexia Nervosa: fear of weight gain leads people to starve themselves
 - Bulimia: cycles of overeating and purging.
 - Binge eating: overeating compulsively
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- fad diets: weight loss plans that tend to be popular for a short period of time
- weight cycling: a repeated pattern of losing and gaining weight
- fad diets typically restrict certain foods or involve some sort of supplement that is not sustainable and therefore will result in weight cycling.
- Types of fad diets:
 - miracle foods: eat this food and you will lose weight
 - magic combinations: eating certain foods together will trigger weight loss
 - liquid diets: replace solid foods with ultra low calorie liquid formulas
 - Diet pills: claim to suppress appetite, burn fat or flush your system
 - fasting: deprives the body of needed nutrients
- 4 categories of exercise:
 - Endurance
 - Strength
 - Balance
 - Flexibility

- Endurance Exercise: These are aerobic activities that increase breathing and heart rate.
 - Running, swimming, biking..... *name others*
 - <http://www.livestrong.com/article/132351-cardiorespiratory-endurance-exercises/>
- Strength: Makes your muscles Stronger
 - Body Building - 8-12 reps one muscle group a day
 - Power Lifting - Training for maximal strength, low reps high weight
 - Circuit Training: Multiple exercises in quick succession with little rest. High reps lower weight
 - Isometric: Holding a weight up for a given amount of time. Increases stamina
 - High Volume Training: One muscle group a day. High reps and sets. Maybe 10 reps for 10 sets
 - <http://www.livestrong.com/article/509759-5-types-of-weight-training/>
- Balance: increasing muscular balance, helps prevent falls and injury
 - yoga
 - martial arts
 - climbing
 - <http://www.livestrong.com/article/506296-10-examples-of-coordination-balance-exercise/>
- Flexibility: stretching muscles to give you more mobility, increase strength, and speed
 - Static Stretching: Stretching a body part to its furthest position and holding it
 - Dynamic: Swinging legs and arms moving them to the extent of their range of motion
 - Ballistic stretching: forces a body part to go beyond its normal range of motion
 - <http://www.livestrong.com/article/539154-7-types-of-stretching-exercises/>
 - Fitness Fads:
 - P90X
 - Crossfit
 - Tae Bo
 - Pilates
 - Zumba.....
 - *Name more*
 - Some fitness fads work better than others but doing something is better than nothing.
 - The effectiveness of workouts depends on your goals.
 - We will now go over a few different forms of exercise and demonstrate some of these exercises.
- What is HIIT: Short periods of anaerobic exercise with in succession with little rest.