

**Notes:**

- A workout is an exercise program that focuses on high energy activity
- It's important to warm up before activity so that you do not tear or strain a muscle
- Cooling down allows your heartbeat, breathing and blood pressure to return to a normal level gradually
- You should drink water before, during and after your workout
- As your fitness level increases, you intensity and frequency should increase as well
- You can monitor the intensity of your workout by checking your heart rate before, during and after your workout.

**Notes:**

- Weight training is a form of resistance training, which means that muscles must resist a force such as gravity.
- Weight training strengthens muscles, tones muscles, strengthens bones, and helps you manage weight.
- Most people should wait until they are 15 to lift heavy weights.
- Weight training is for males and females.
- Dehydration can cause muscle cramps and heatstroke
- Steroids:
  - Can block teen's normal growth and development
  - Can weaken tendons
  - Can weaken bones
  - Can cause heart rate and blood pressure irregularities
  - Can increase the risk of heart attack and cancer
  - Cause acne
  - Can change sexual characteristics due to changing hormone levels
- Every conditioning program should be personalized for the individual
- Age, weight and physical health should be factors when planning a conditioning program

**Notes:**

- To prevent injuries during physical activity, you should wear protective equipment, avoid activities beyond your ability, follow rules, warm up and cool down
- Sore muscles are not injuries. They are common when beginning new fitness activities
- Soreness is the result if tiny tears in your muscles that happen due to resistance
- You can reduce soreness by warming up, stretching and cooling down
- Overworking can result in muscle strains, sprains and tendonitis
- Major injuries include:
  - Dislocation
  - Fracture
  - Stress fracture
  - Concussions
- A concussion is a brain injury that can cause swelling of the brain, dizziness, and confusion.
- When muscles feel sore or injured, remember PRICE
  - P - Protect the injured part of your body
  - R- Rest
  - I- Ice the injury

- **C- Compress** or put pressure using a stretchy bandage
- **E - Elevate** the injured area
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- 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=-fSt7aWAVqE>
- **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.g27023009&feature=iv&src\\_vid=-fSt7aWAVqE&v=CzBGa8KnM3Q](https://www.youtube.com/watch?annotation_id=annotation.g27023009&feature=iv&src_vid=-fSt7aWAVqE&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		
<b>B<sub>1</sub></b> (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
<b>B<sub>2</sub></b> (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
<b>B<sub>3</sub></b> (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
<b>B<sub>6</sub></b> 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
<b>B<sub>12</sub></b> (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
<b>C</b> (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
<b>Folic acid (folate)</b> 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
<b>Calcium</b> 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
<b>Phosphorus</b> Teen female: 1,250 mg Teen male: 1,250 mg	produces energy; maintains healthy bones	dairy products, peas, meat, eggs, some cereals and breads
<b>Magnesium</b> 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
<b>Iron</b> 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.

als

**Role in Body**

**Food Sources**