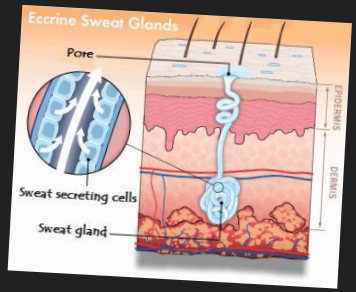
Body Systems

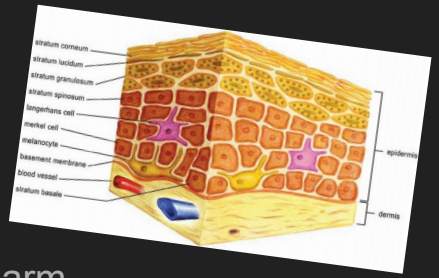
Period 3

How it works:



- Acts as a barrier to protect the body from the outside world. Hair and nails protect.
- Regulates your body temperature, fights disease, holds body fluids, and eliminates waste.

By Mia Belt



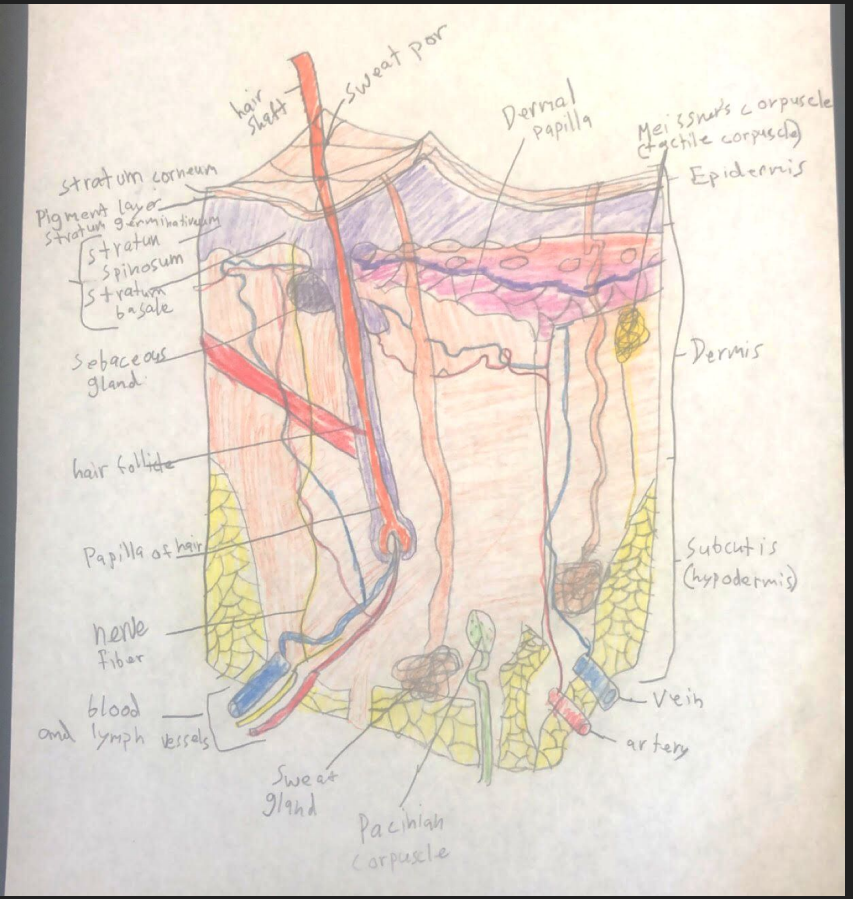
How it gets stronger:

Formatting and images by Aleya McDonald

- Fingernails form to guard the soft nail bed from harm.
- Makes cells called melanocytes (cells that make you skin pigment)
  - Produce melanin (skin pigment/color)
- Melanocytes help the skin adapt when exposed to UV radiation emitted by the sun
  - This makes the skin darker so that it will not develop melanoma (skin cancer)

The epidermis (the layer of skin that covers almost the entire body) protects the dermis (the layer of skin under the epidermis).

By Marcel Smeirat



A diagram of the Integumentary system

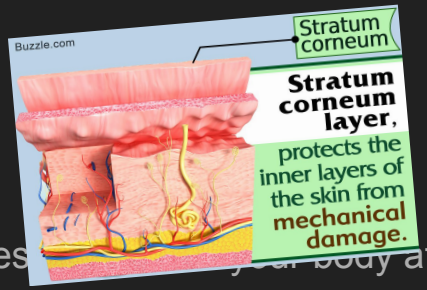
Some organs in the Integumentary system system are:

- Sweat pore: Sweat pores secrete sweat to cool of the skin in order to prevent hyperthermia/overheating
- Dermal Papilla: In thick areas of skin the Dermal Papilla create a large surface area, which helps to nourish the epidermis.
- Hair follicle: The hair follicles hold each and every hair in place which helps protect the skin from environmental threats.
- Blood vessels: Blood vessels extending to the skin helps deliver nutrients such as oxygen for the skin cells to still survive.

Picture by Maria Smeirat

How it repairs itself:

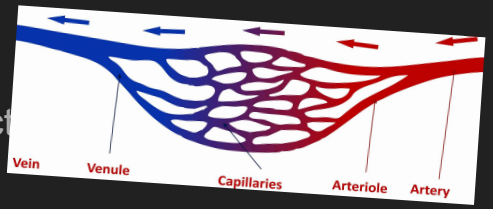
- When damaged (cuts or wounds), it repairs itself using two main ways:
  - The Skin uses stem cells that form new tissue as well as platelets in the blood to form scabs.
  - Furthermore skin cells die and the Integumentary System replaces the dead layer of skin (stratum corneum) about every 27 days.
  - Stratum corneum also sheds itself occasionally due to daily activities, making room for a new layer.



By Ryan Limon

How it interacts with other systems:

- Works closely with the Circulatory System and the capillaries [illegible] body at the surface.
  - Capillaries are fine branching blood vessels that connect arterioles (smallest arteries) to venules (smallest veins)
  - Opens around the surface of skin to cool off the body and maintain a safe temperature
  - Immune System sends cells to the skin if it is damaged to fight off bact[illegible]



~How does the Digestive System Work~

Research by :Hussein

Labels by: Manny

Mouth: Food mushy by saliva and crushed by teeth

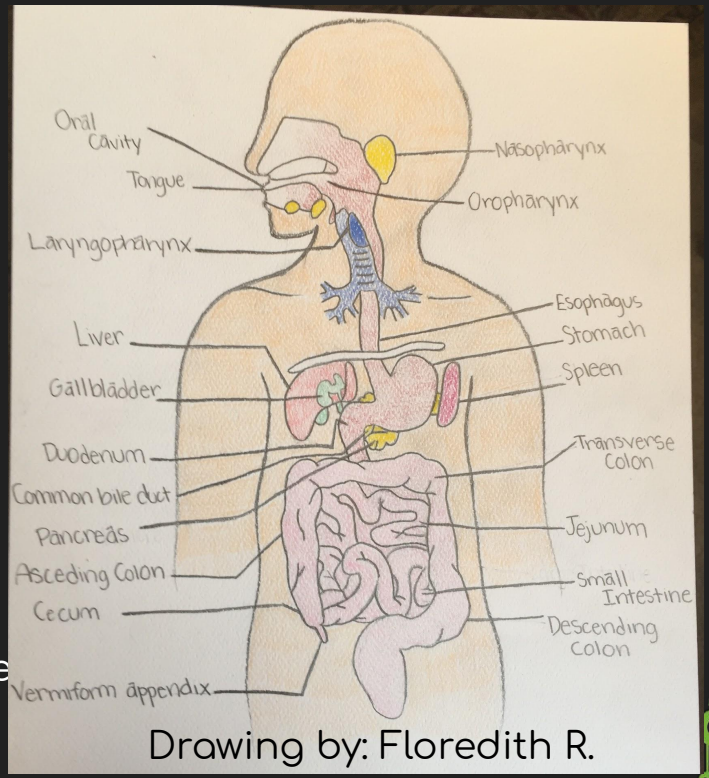
Esophagus: Food is swallowed through a tube that takes the food down

Stomach: foods soaked in acids (produce digestive enzymes, they speed up process), proteins broken down, *when running, any food in the stomach jumps up and down and causes distress*

Small Intestine: it breaks down starches (a carbohydrate), and proteins

Large Intestine: it breaks down water and salt, makes waste into a solid

Colon: Things the body doesn't need (feces/waste) enters the colon, and finally leaves through the anus canal

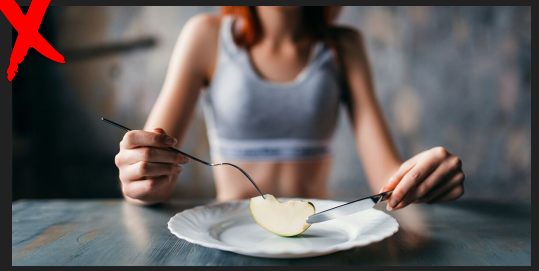


Drawing by: Floredith R.

~How to Strengthen the Digestive System~

- whole grains, leafy greens, lean protein
- Chew food well, eat enough food to give you energy
- Eat mindfully
- Manage your stress (stress causes acid to produce indigestion)
- Eat on a schedule, eat sitting up
- Avoid smoking, drinking alcohol eating late

Where food is forced back up



Don't undereat!

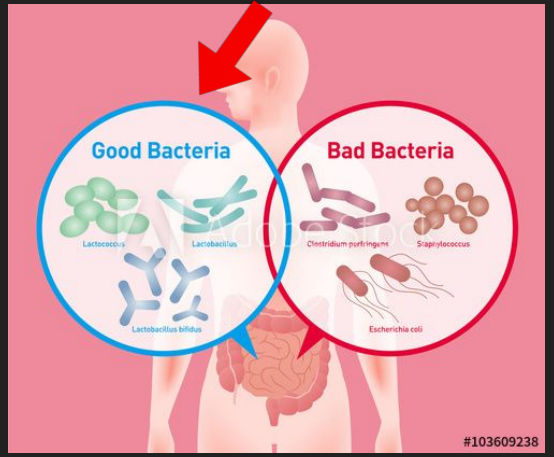
Strong and nourished digestive system and body

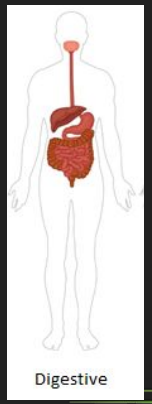
Floredith R.

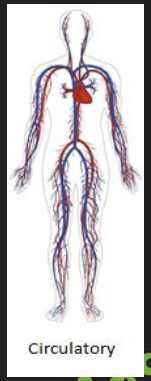
~How the Digestive System repairs and works with other Systems~

- Circulatory System- When running, blood gets moved away from stomach and to the muscles instead. It sends chemical signals from the Endocrine to the digestive system.
- Endocrine System- The system puts hormones into bloodstreams, and enzymes into the digestive tract. Hormones balance the body's temperature, heart rate and blood pressure. If the Endocrine stop working it stops cells and organs.
- Eating whole foods
- Eliminating food allergies
- Treat illnesses by taking probiotics (good bacteria)
- Replenish digestive enzymes, They help repair the healthy bacteria.
- Eat healthy fats, try avocados (keeps the digestive system working because of fiber), dark Chocolate (an antioxidant, protects cells when breaking down food), or whole eggs (source of Protein, a nutrient)

Probiotics

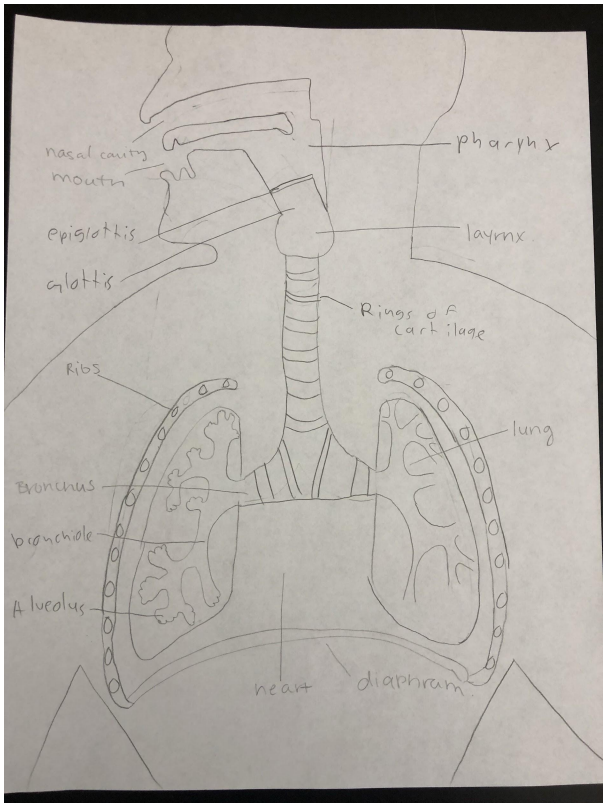



Digestive


Circulatory

The Respiratory System

Amanda McLauchlan, Ryan Kershaw, Eduardo Renteria, Erick Delgado, and Fadi Haroun

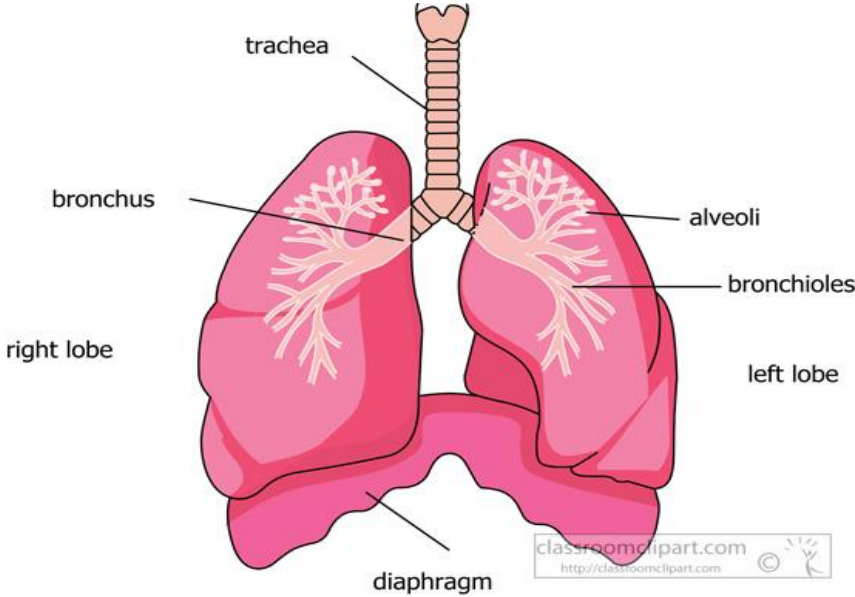


Drawing by Ryan Kershaw

How does the Respiratory System Work and how does it get stronger?

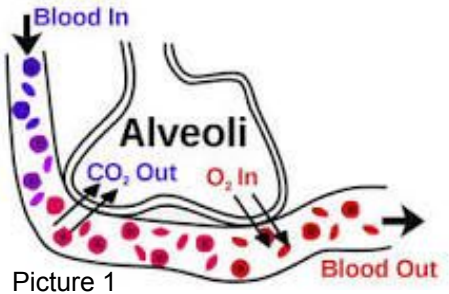
The Respiratory System is the exchange of two gases, oxygen and carbon dioxide. When this happens your diaphragm flattens which causes the chest to have more space for the lungs to enlarge for more oxygen.

By: Amanda Mclauchlan



To gain a strong Respiratory system, you will need to eat healthy, exercise, and get lots of sleep. Exercise will improve your lungs and will improve the amount of oxygen that passes through the body. In picture 1, it shows where the oxygen passes through, your blood vessels and where the CO2 goes out.

By: Fadi Haroun



Picture 1

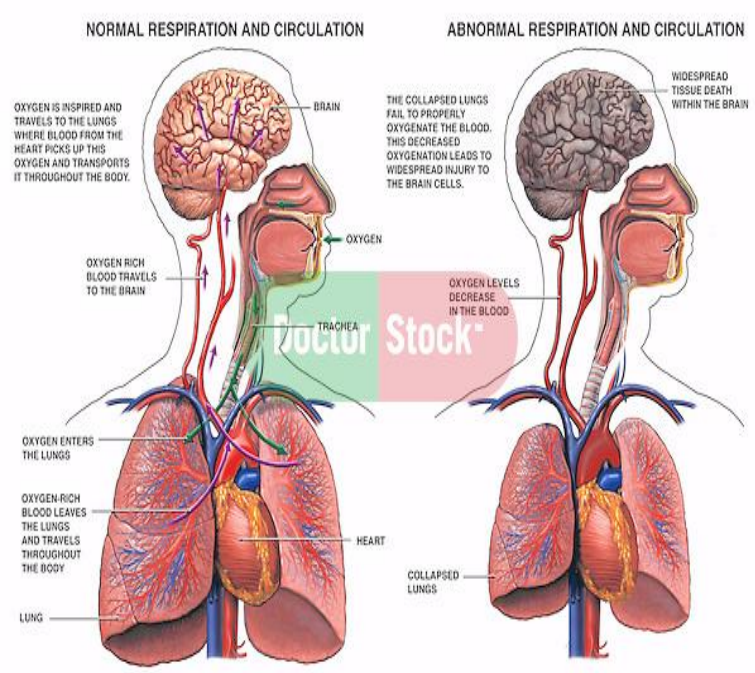
How does the respiratory system Repair and How does the respiratory system interact with other systems?

Repair: Our respiratory system does not produce a lot of cells. When we hurt our system our body can only produce just the right amount to repair that part.

By: Erick Delgado

Circulatory: The circulatory and respiratory system work together to circulate blood and oxygen throughout the body. Air moves in and out of the lungs through the trachea, bronchi, and bronchioles. Blood moves in and out of the lungs through the pulmonary arteries and veins that connect to the heart.

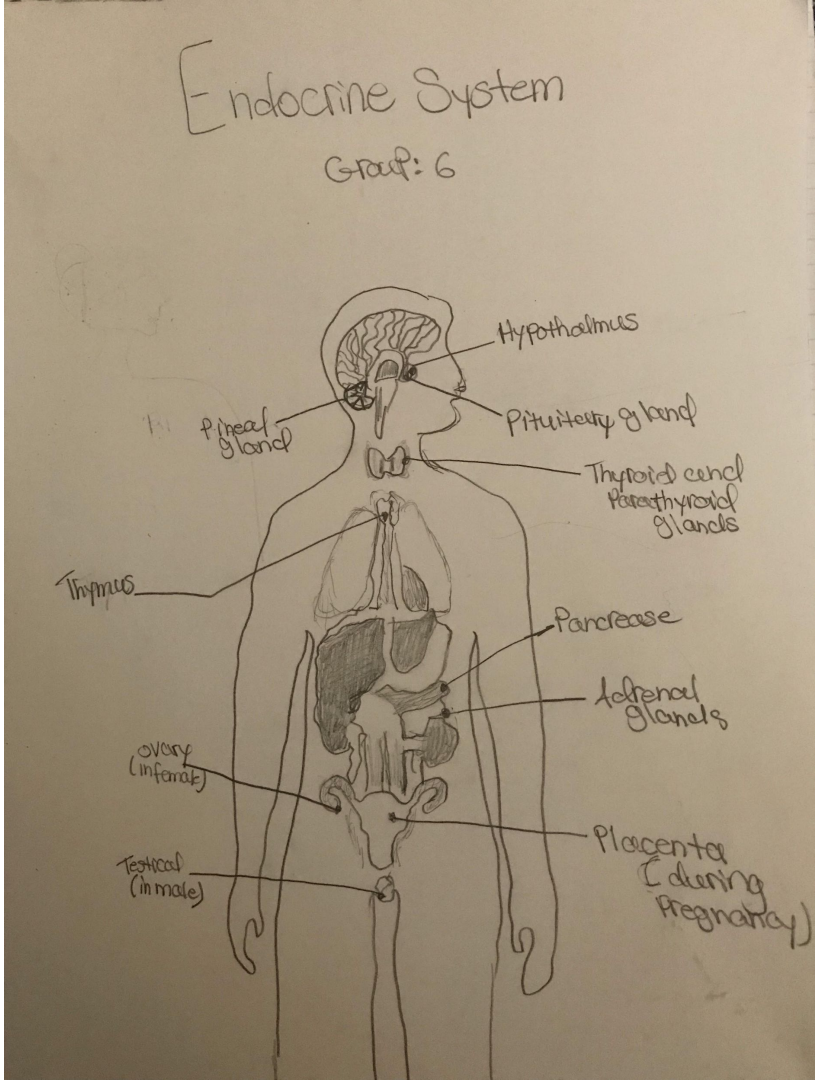
Nervous: The Nervous system interacts with the respiratory in the way that the brain monitors respiratory volume and regulates respiratory rate.



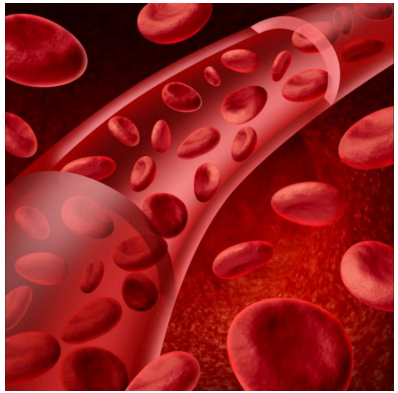
What is the Endocrine system?

- Pineal Gland
- Thymus
- Ovary (In Female)
- Testicle (In Male)
- Placenta (during pregnancy)
- Hypothalamus
- Pituitary
- Thyroid and Parathyroid Glands
- Pancreas
- Adrenal Glands

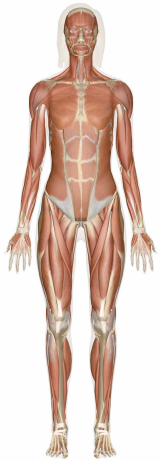
-Zeena Ashir



How does the Endocrine system interact with other systems?



-- bloodstream



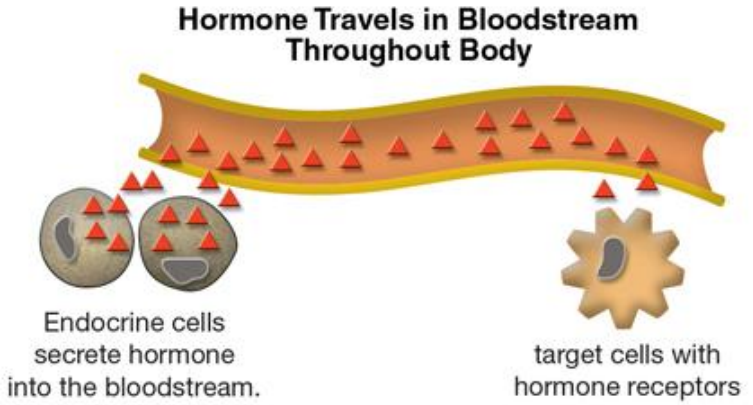
-- muscles

The Endocrine System interacts with the nervous system by passing hormones and messages through the bloodstream. The movement generates thermal energy and helps raise the body temperature. Keeping the body temperature constant requires the endocrine system, nervous system, and muscular system to work together.

Kaylee Robinson

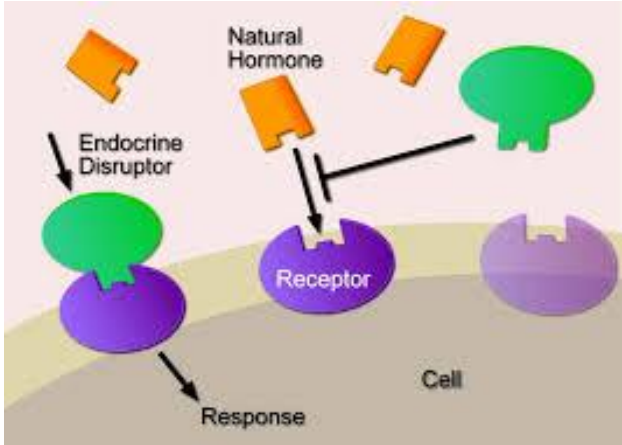
What does Endocrine System do?

Endocrine system is made up of glands that produce hormones that regulates metabolism, growth, and development, and the way our organs work. It regulates how much of each hormone is released and needs a strong blood supply to transport to the hormones. - Camerina



How does Endocrine System work and repair?

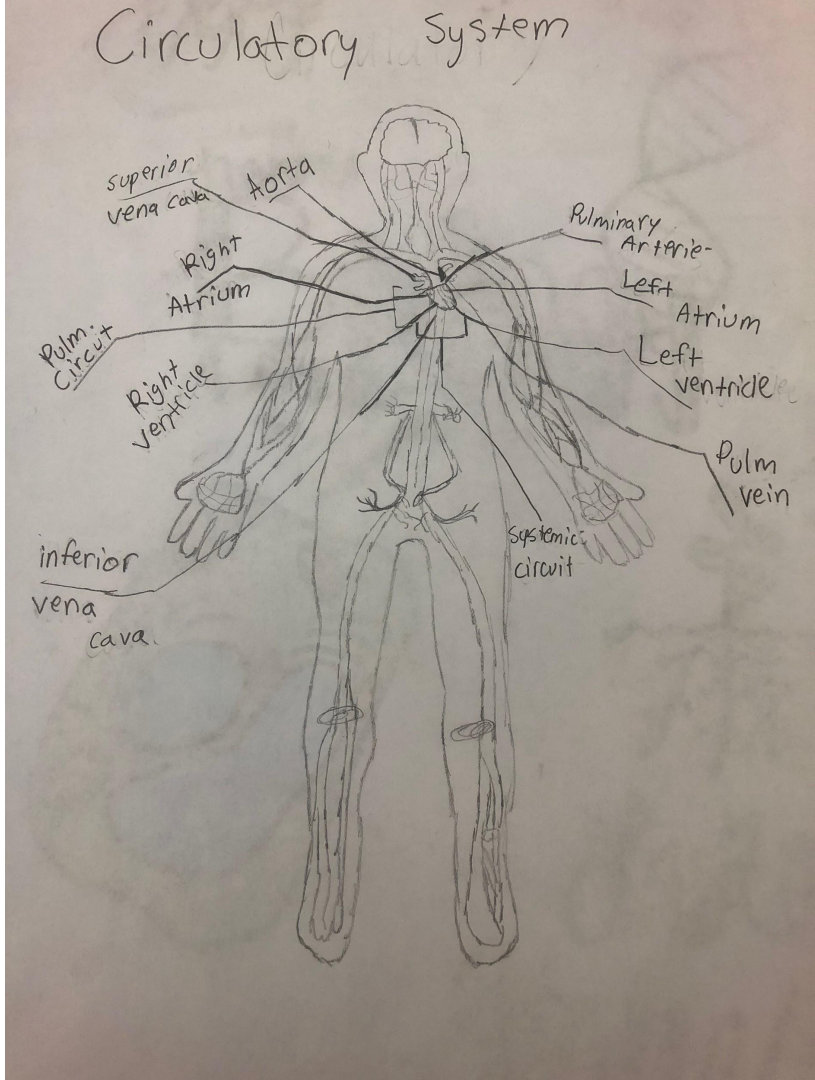
The Endocrine System needs to release the correct amount of hormones. If it releases too much or too little, this is will lead to hormone imbalance. To help get hormones back to normal people can go on hormone replacement therapy. Some natural ways to fix hormone imbalance are losing weight, exercising, and eating a healthy and balanced diet with lots of protein.
Danita



How it works

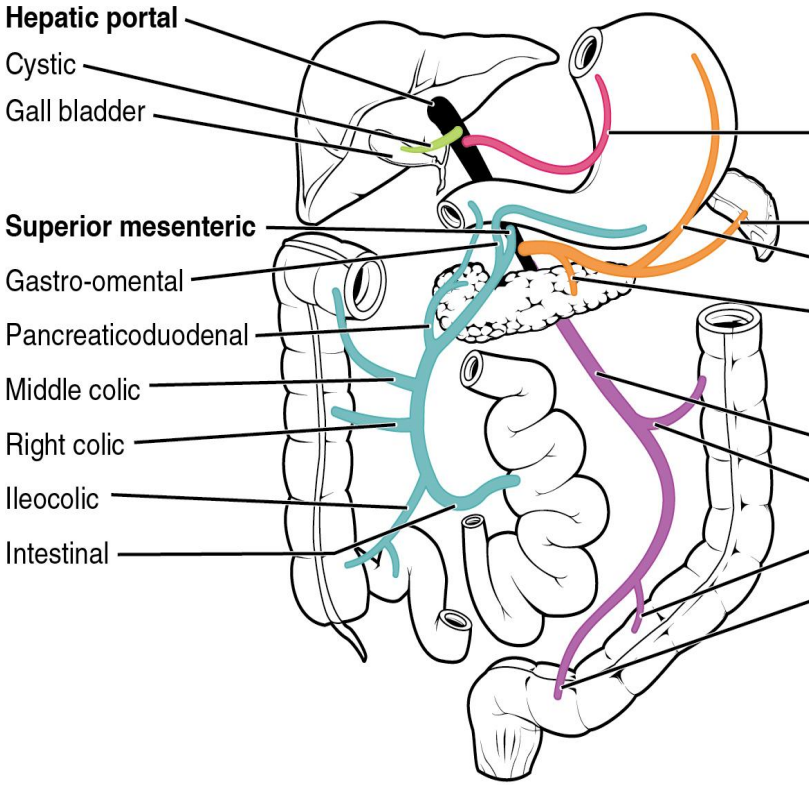
1. The left side of the heart takes the oxygen deprived blood into the lungs to be oxygenated.
2. The right side of the heart pumps blood that has been oxygenated through the pulmonary artery.
3. The Aorta is what all of the blood goes through.
4. The blood is pumped throughout the body to supply tissues with oxygen.

Luke Knierim



Circulatory System Interactions

The circulatory system works with several other systems in the body. It works closely with the digestive system to carry absorbed nutrients throughout the body. Another system that works closely with the circulatory system is the muscular system. Muscles need oxygen to move and operate properly and the circulatory system carries oxygen to the muscles.

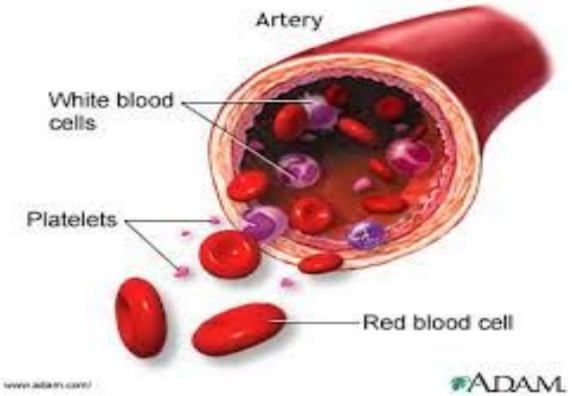


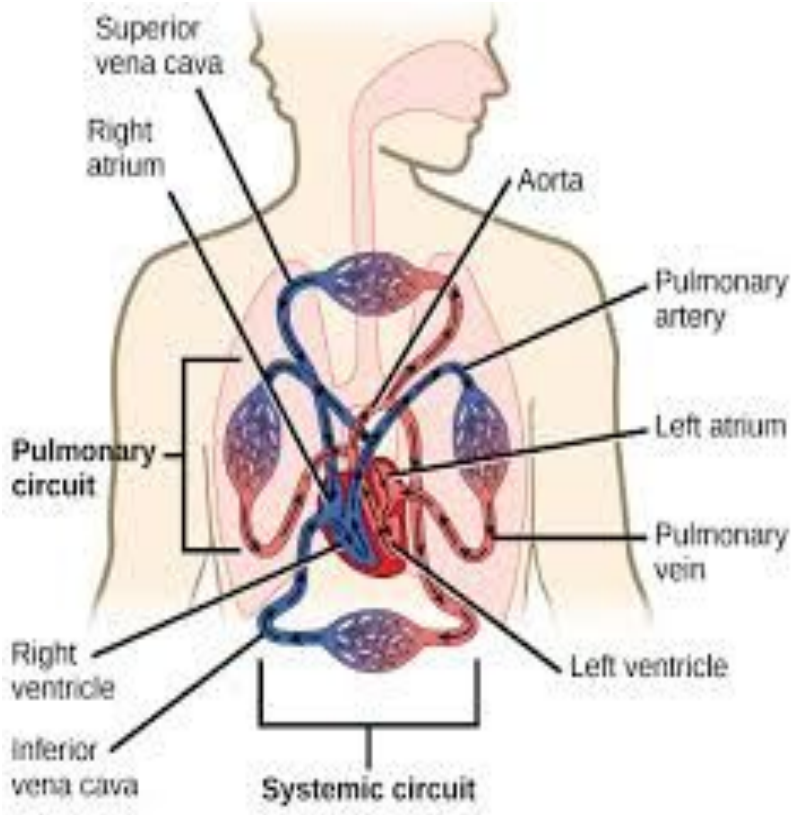
Max Graney

How Does the Circulatory System Repair?

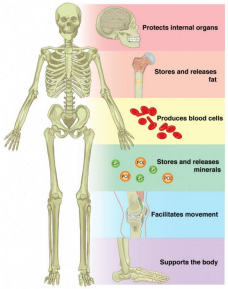
- The circulatory system and the muscular system work hand in hand for the most part.
- When the muscles get fatigued from working hard the circulatory system provides oxygenated red blood cells
- These cells rebuild and repair those broken down muscles so they can be stronger next time.

Riley Thompson





How It Works



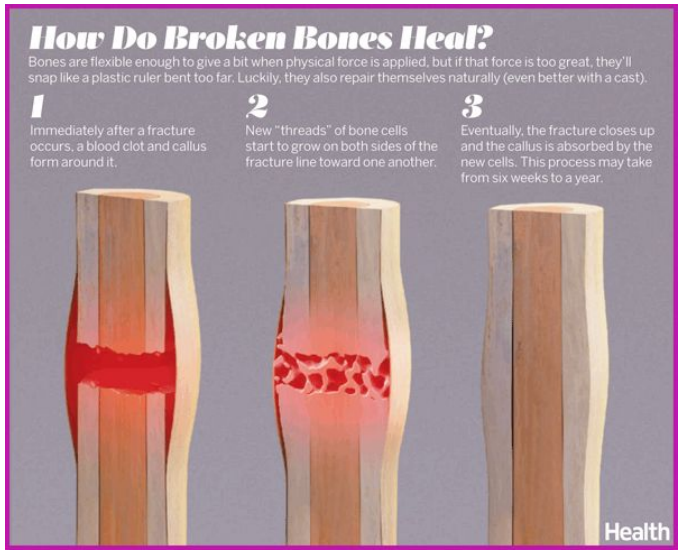
The skeletal system stores calcium, produces blood cells, protects vital organs, an it gives the muscles something to move. It gives us are shape. Without bones we would be a formless, unprotected mass of organs and tissue. - George

How It Interacts With Other Systems

- The skeletal system interacts with the nervous system whenever a bone fractures or breaks.
- The digestive system is able to provide nutrients to the bones and helps them produce cells. -chris

How does the bone get stronger and how do they repair- Olivia Sapper

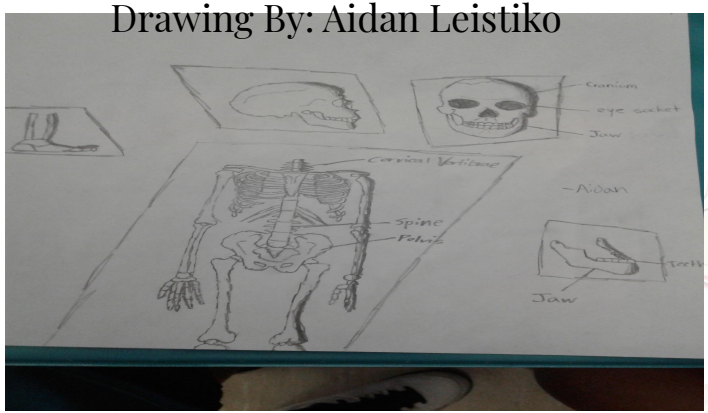
- Food that has calcium strengthen your bones. Ex milk, bananas, and eggs
- Threads of bone starts to grow
- Threads meet and fracture closes and absurdes thickened skin

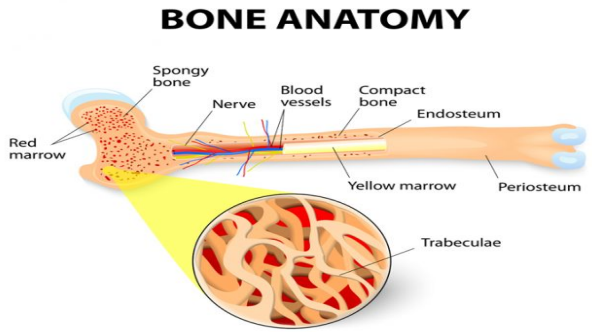


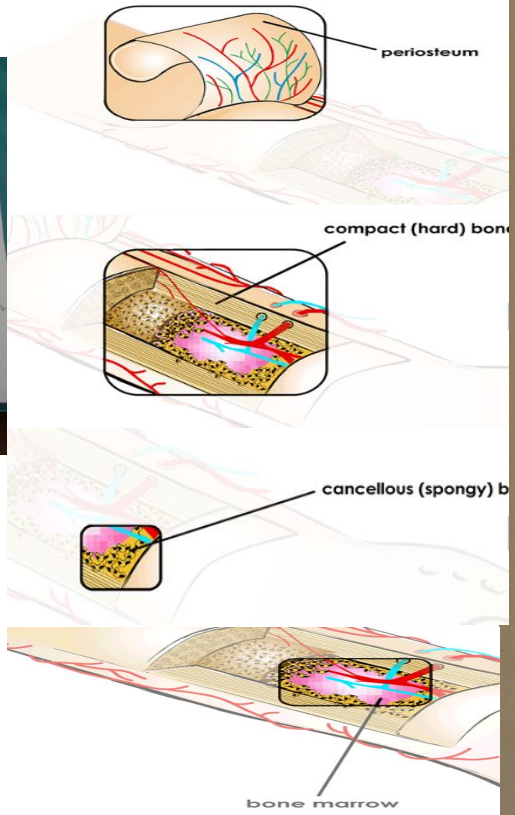
Diagrams of The Skeletal System By:Jhordy Castillo and Aidan Leistiko

The skeletal system acts as an anchor to the muscles. It keeps them in place and gives the muscles something to move. The skeleton acts as an armour for your vital organs. Using the ribcage and the skull the skeleton is able to protect your most vital organs such as your heart, spinal cord, brain, and lungs. -Aidan Leistiko

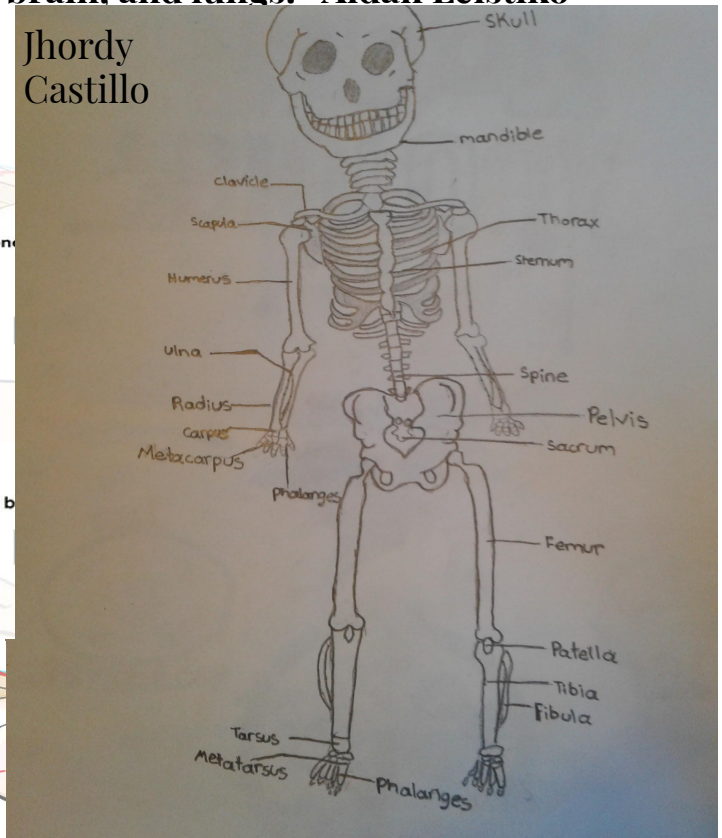
Drawing By: Aidan Leistiko





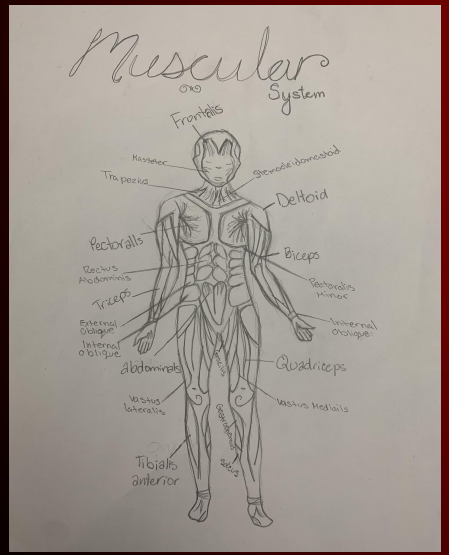


Jhordy Castillo

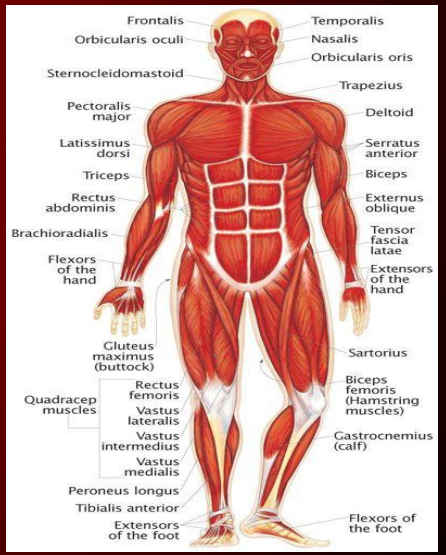


The Muscular System

By: Kenna, Joshua, Gillian, Jane, Isis, and Angela



Jane/ Isis

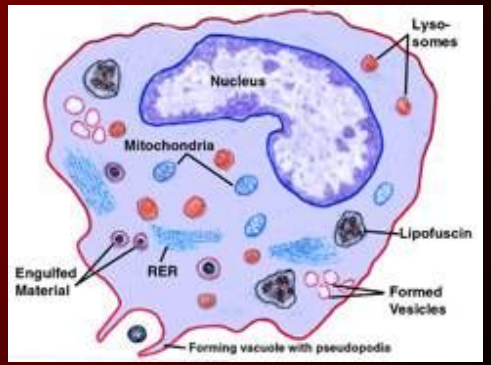


How Does it Work and Strengthen?

- The muscular system is responsible for the movement of the body.
- 700 named muscles.
- Discrete organ
- Exercise

How Does it Repair?

- Macrophage cell
- Satellite cell
- Compilation of tissue and cells
- Fibroblast



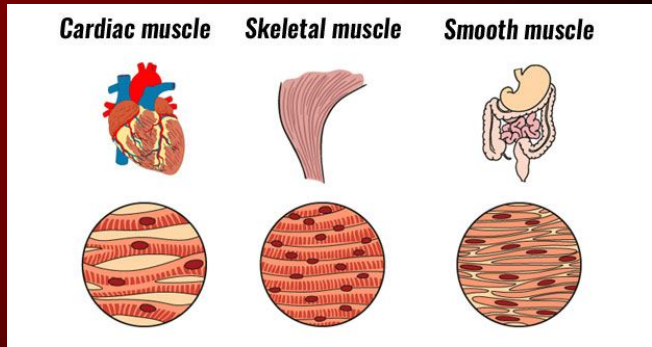
KENNA JOSHUA AND ANGELA

How Do muscles Interact With Other Systems?

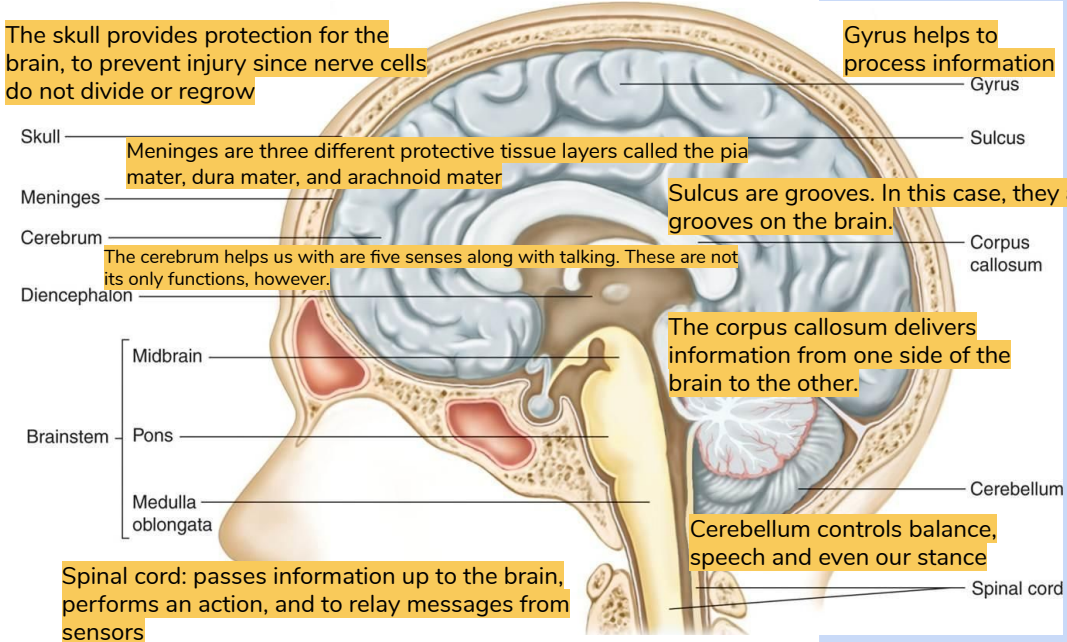
- The muscular system is divided into three categories: **Skeletal, Cardiac, and Smooth Muscles**

- Skeletal muscles support the skeletal system.
  - They serve as protection for the bones
  - They support body movement
- Smooth muscles support the digestive and cardiovascular systems.
  - They line the walls of the stomach and intestines
  - They help arteries and veins constrict and relax to control blood flow.
- Cardiac muscles support the cardiovascular system.
  - They help the heart pump blood, providing oxygen to the body

GILLIAN Kahoot



The Nervous System



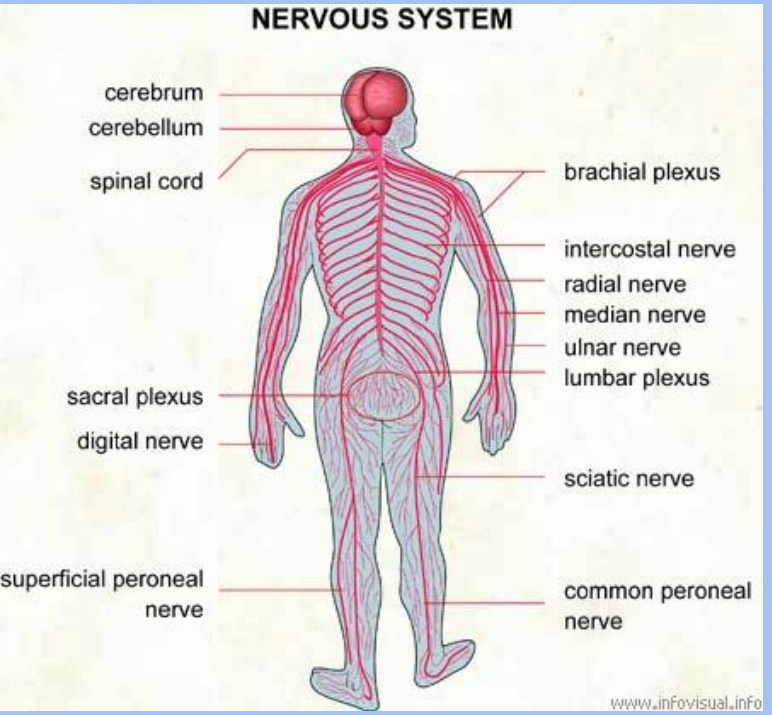
- The main part of the two parts is the central nervous system, consisting of all the nerves in the brain and spinal cord.
- The peripheral nervous system, which is the second part, is everything else in the nervous system that isn't the brain or spinal cord
- Dendrites are nerve cells that receive signals from other nerve cells.
- All signals will travel along the axon/long nerve
- Motor neurons send signals to move our limbs by producing a chemical to contract muscles
- There are approximately 86 billion neurons (nerve cells) in the body.
- Two nerve cells interacting is called nerve conduction.

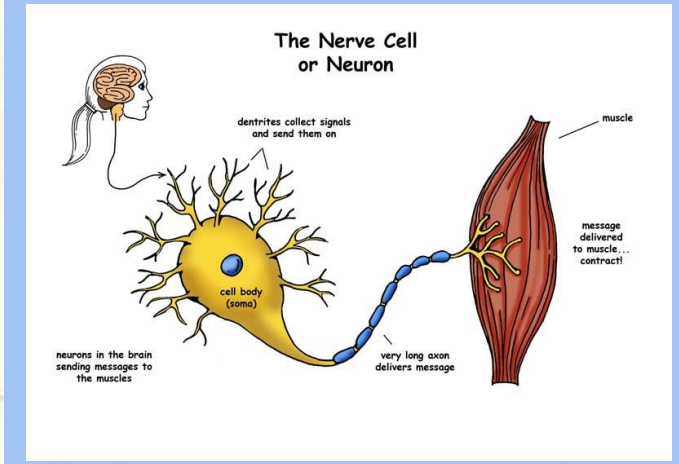
On the left, the central nervous system is pictured.

How it works/What it does: Cole Johnson

Figure 1: Annie Kamahi

Notes acquired from: Biology4Kids, NCBI, CCMR, LibreTexts





The nervous system works with every other system in the body.
The nervous system's work with the muscular system allows us human beings to move.
Another example is the endocrine system, which receives certain hormones and enzymes from the brain.

- The skeletal system works with the nervous system by protecting not only the brain via skull but the spinal cord through vertebrae.
- The brain also controls an individual's heart rate and blood pressure.
- Within the reproductive system, the brain controls mating behavior, which we see in animals and humans alike.

Figure 2: Annie Kamahi

enzyme: substance produced in the body to produce a biochemical reaction
vertebrae: any one of the bony pieces that make up the spinal column

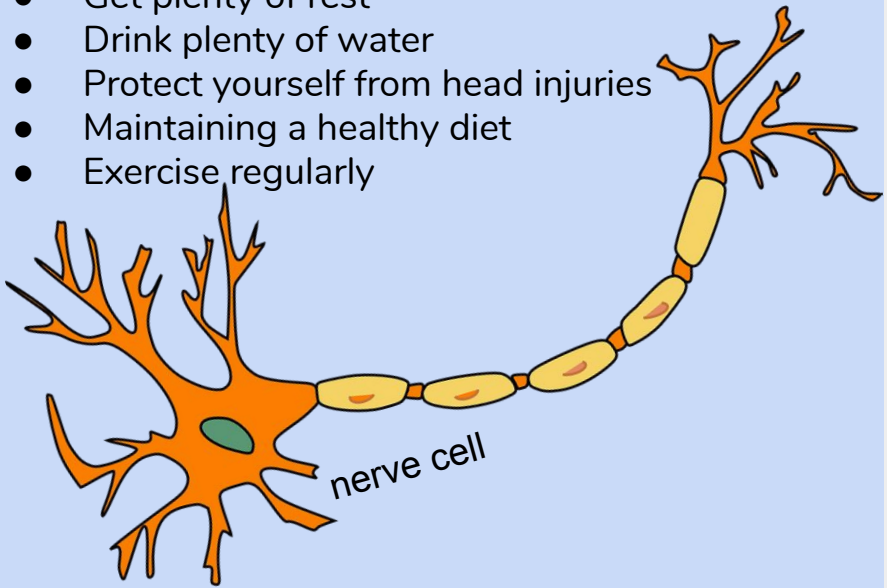
Interaction with other systems: Riley Moore

Information from: https://faculty.washington.edu/chudler/organ.html, https://www.assh.org/handcare/hand-arm-injuries/Brachial-Plexus-Injury

How the Nervous System Repairs and Strengthens itself

The nervous system does not specifically strengthen itself but there are things you can do to keep it in good shape. This is done in the form of preventing nervous system problems.

- Get plenty of rest
- Drink plenty of water
- Protect yourself from head injuries
- Maintaining a healthy diet
- Exercise regularly



- When the nerve cells have been damaged, they can sometimes rejuvenate on their own, if not completely ruined.
- Rejuvenation of nerve cells can be an often slow and insufficient process. -
- Ways to speed up and help the healing process including specific medicines, physical therapy (shown below), diets, etc.
- Inside the skull, there are layers of tissue and different fluids to protect not only the brain, but the spinal cord as well.
- **Repairs/Strengthens: Grace Mowrey and Ireland Ervin**