

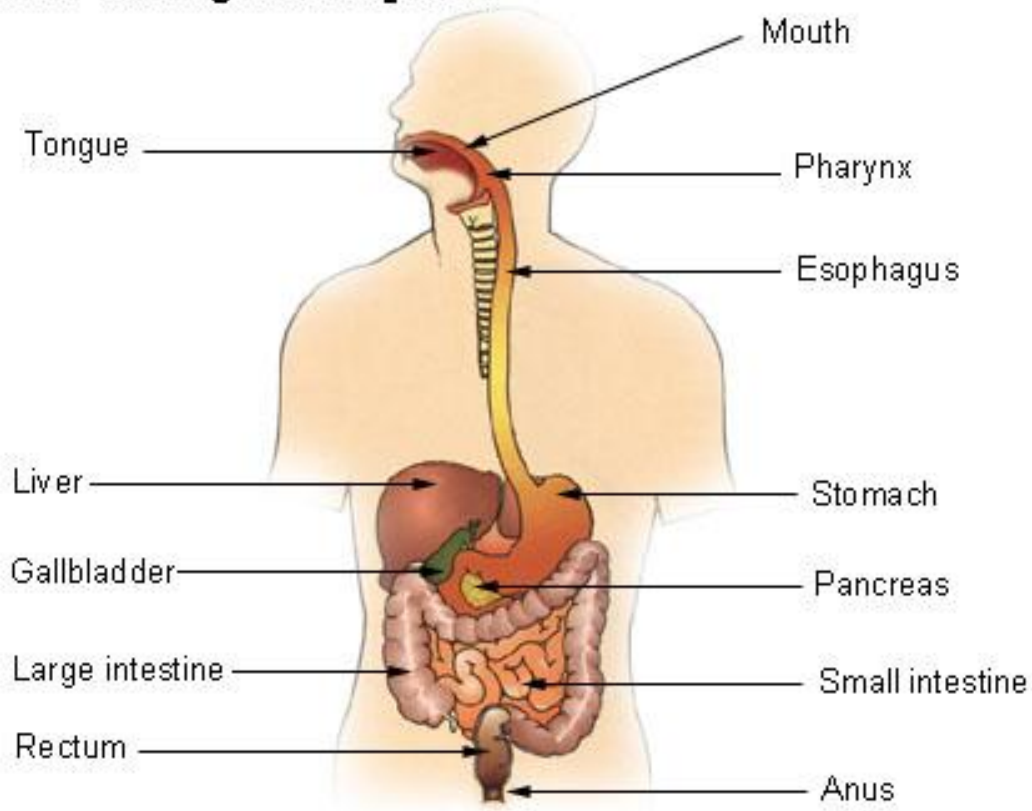
Cells and Systems Study Notes

Human Systems Study Notes

1) The Digestive System

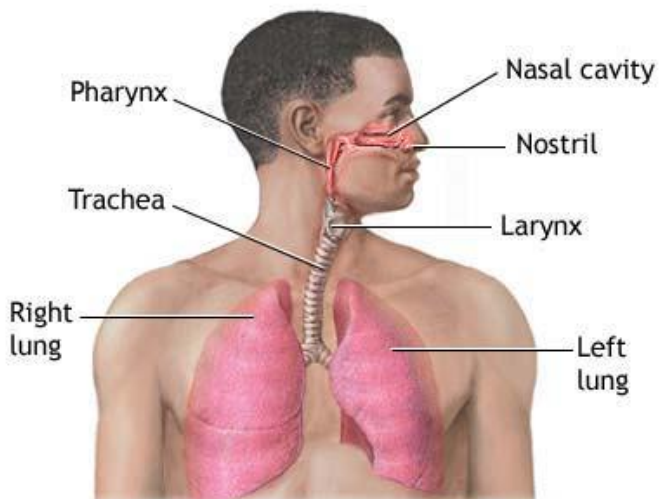
Digestion breaks down food into simpler substances so it can be used and absorbed into the body. It takes place in the alimentary canal, (food tube), mainly in the stomach and small intestine. Digested food is absorbed into the blood system.

Organs of the Digestive System



2) The Respiratory System

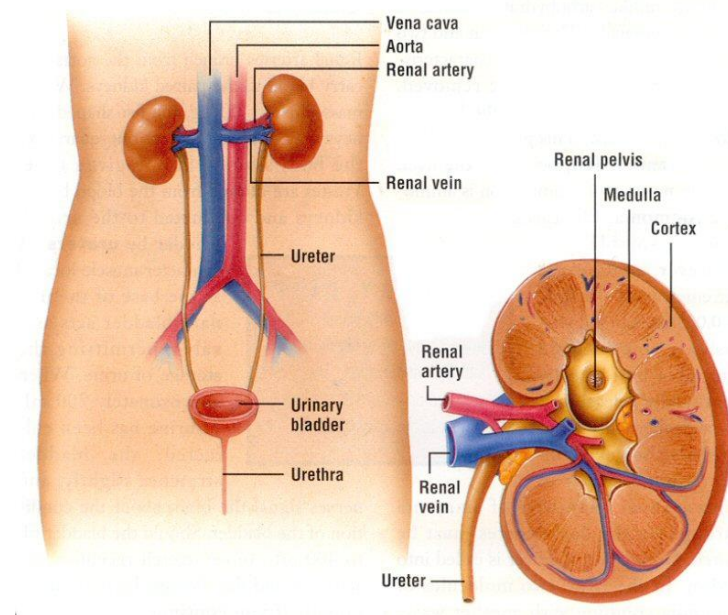
This system takes in oxygen and removing waste carbon dioxide. Air enters the lungs by movement of the rib muscles and diaphragm. Oxygen is absorbed into the blood system.



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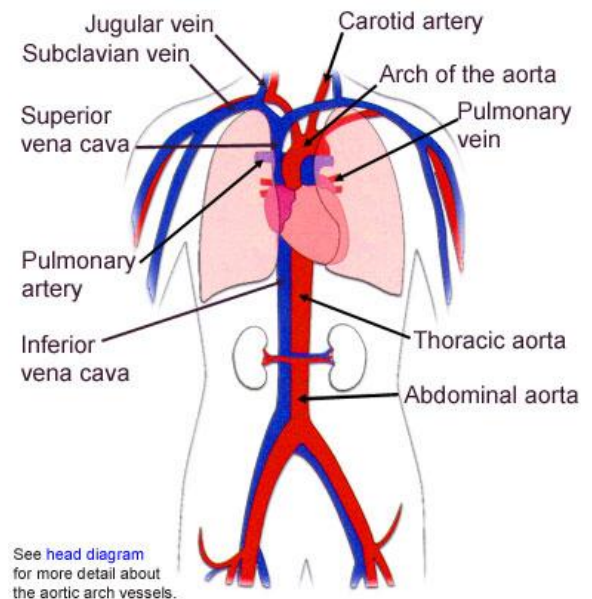
3) The Excretory System

This system removes toxic and other waste materials from the body. Waste material is filtered out of the blood by the kidneys and made into urine. This is stored in the bladder and released via the urethra.



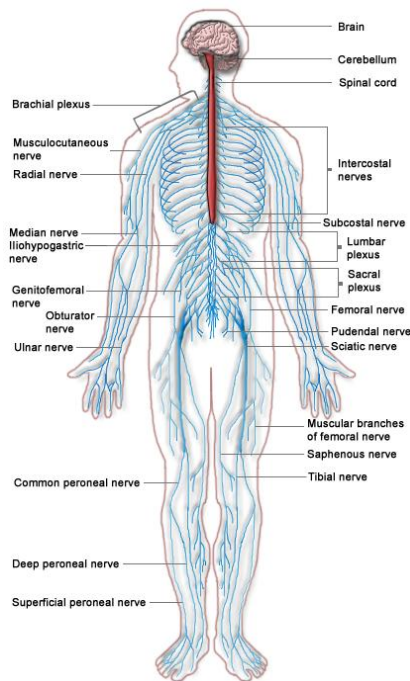
4) The Circulatory System

The heart pumps blood around the body. It supplies cells with oxygen and food, and then carries away the wastes like carbon dioxide. The blood leaving the aorta is full of oxygen. This is important for the cells in the brain and the body to do their work. The oxygen rich blood travels throughout the body in its system of arteries. On its way back to the heart, the blood travels through a system of veins. As it reaches the lungs, the carbon dioxide (a waste product) is removed from the blood and replaced with fresh oxygen that we have inhaled through the lungs. When the blood leaves the pulmonary arteries it enters **capillaries** in the lungs. Capillaries are very, very small blood vessels that act as the connectors between veins and arteries. The



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capillaries in the lungs are very special because they are located against the **alveoli** or air sacks. When blood in the capillaries goes past the air sacks, the RBC's pick up oxygen. Capillaries are so small, in some places, that only **one** RBC at a time can get through!

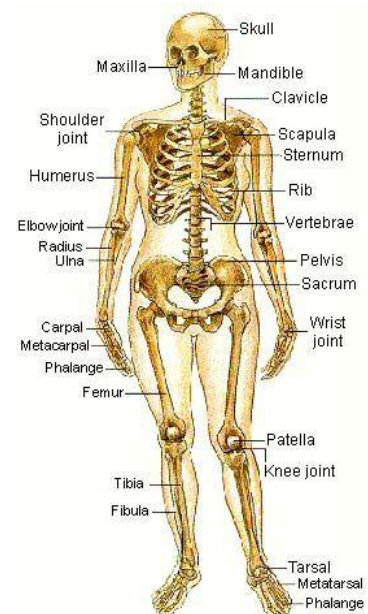


5) The Nervous System

The five sense organs are: eyes, ears, nose, tongue, skin. They all contain nerves, which send messages to the brain about what's happening. The brain produces a response, which it sends via other nerves to the muscles.

6) The Skeletal System

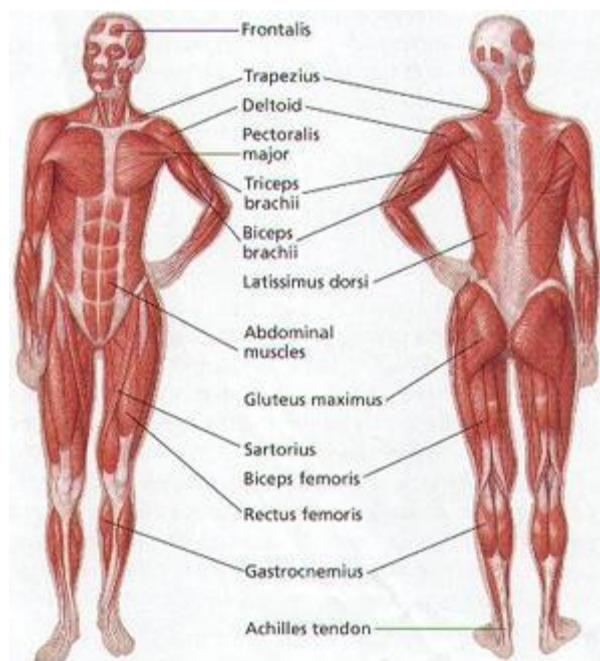
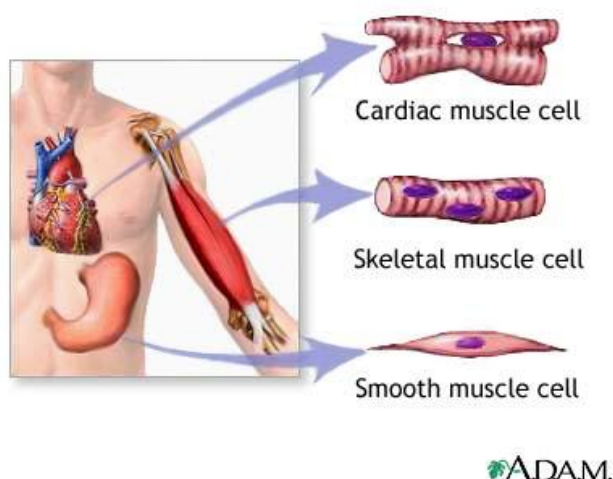
There are 206 bones in the human body and their main job is support. Some bones (e.g. the skull) provide a tough barrier to protect delicate organs like the brain. Muscles are attached to the bones which contract and relax allowing movement.



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7) The Muscle System

Muscles are attached to bones. Muscles cause movement when they contract and relax. Muscles are usually found in pairs around a joint. There are 3 main types of muscles- skeletal, cardiac, and smooth. The cardiac muscles are the muscle of the heart itself. The skeletal muscle makes up about 40 % of an adults body weight and made up of long muscle fibres. Much of our internal organs are made up of smooth muscles to help with the organ's function.



Disorders of the Systems

Digestive System

Colo/rectal cancer- may be caused by a poor diet.

Ulcers- caused by excessive stomach acid damaging the stomach wall or small intestine

Respiratory System

Bronchitis- an irritation of the lining of the airways, often caused by irritants (smoke, pollution).

Lung Cancer- often caused by smoking.

Circulatory System

Narrowing of the arteries- arteries may become narrower and blood will have a harder time going through because of fatty deposits that build up. A heart attack may occur if all of the vessel becomes blocked and blood is not able to get to parts of the heart.

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Stroke- a blockage of the blood vessels that occurs in the vessels that go to the brain.

Nervous System

Alzheimer's disease- no known cause but may be genetic. Often the nerve cells of the brain are abnormal.

Multiple Sclerosis- may be caused by many factors which may include genetics, environmental or viral. The myelin sheath that insulates nerve cell fibres is damaged. This sheath assists with the high-speed transmission of electrochemical messages between the brain, the spinal cord, and the rest of the body. When myelin is damaged, transmission of messages may be slowed or blocked completely.

Excretory System

Kidney disease- may be genetic and will cause the shutdown of one or two of the kidneys. If both kidneys shut down, dialysis (machine filtering of the blood) will be needed to get rid of the wastes or a kidney transplant.

Gout- accumulation of more than the usual amount of uric acid (caused by either the body manufacturing excess uric acid or the kidneys not excreting enough of it) and since it's not water-soluble, it gets stored in the body, frequently in toe joints, causing pain and deformation of the joints involved as well as the formation of kidney stones.

Skeletal System

Osteoporosis - is a disease resulting in the loss of bone tissue. In osteoporosis, the cancellous bone loses calcium, becomes thinner, and may disappear altogether.

Arthritis - Inflammation of one or more joints - will cause pain, restriction of motion.

Plants also have systems

