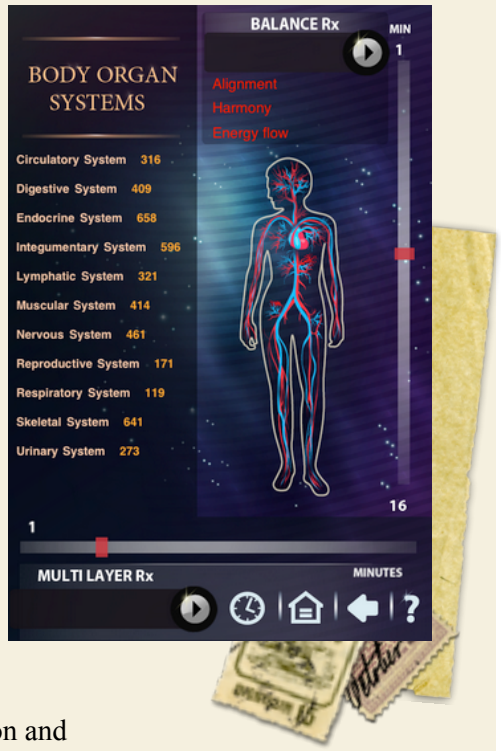
BODY ORGAN SYSTEMS

The cardiovascular system has some characteristics that make it a unique, such as the fact that it is a closed circle, the fact that it is elastic, and the fact that it is filled with liquid at a positive mean pressure



Circulatory System
The main components of the human cardiovascular system are the heart, the veins, and the blood vessels. It includes: the **Pulmonary circulation**, a "loop" through the lungs where blood is oxygenated; and the **Systemic circulation**, a "loop" through the rest of the body to provide oxygenated blood.

Digestive System
The digestive system is made up of the digestive tract—a series of hollow organs joined in a long, twisting tube from the mouth to the anus. Organs that make up the digestive tract are the mouth, esophagus, stomach, small intestine, large intestine—also called the colon—rectum, and anus.

Endocrine System
The **endocrine system** is a system of glands, each of which secretes a type of hormone directly into the bloodstream to regulate the body. These chemicals are known as hormones. A hormone is a specific messenger molecule synthesized and secreted by a group of specialized cells called an endocrine gland. These glands are ductless, which means that their secretions (hormones) are released directly into the bloodstream and travel to elsewhere in the body to target organs, upon which they act.

Integumentary System
The integumentary system consists of the skin, hair, nails, glands, and nerves. Its main function is to act as a barrier to protect the body from the outside world. It also functions to retain body fluids, protect against disease, eliminate waste products, and regulate body temperature. In order to do these things, the integumentary system works with all the other systems of your body, each of which has a role to play in maintaining the internal conditions that a human body needs to function properly.

Muscular System
The muscular system in your body is composed of skeletal muscle, cardiac muscle and smooth muscle. Skeletal muscle attaches primarily to your skeleton and moves voluntarily or by reflex. Cardiac muscle is the muscle of your heart and contracts involuntarily. Finally, smooth muscle is found in your blood vessels, eyes, hair follicles and the walls of hollow organs like your stomach and intestines.

Reproductive system
The reproductive system is the key to the procreation and survival of the human race. Human reproduction is the effort of a male and female that involves four functions of the reproductive systems. These functions are production of egg and sperm cells, transportation and sustenance of cells, development and nurturing of offspring and production of hormones. The male and female hormones have significant effects on the functions of the reproductive system.

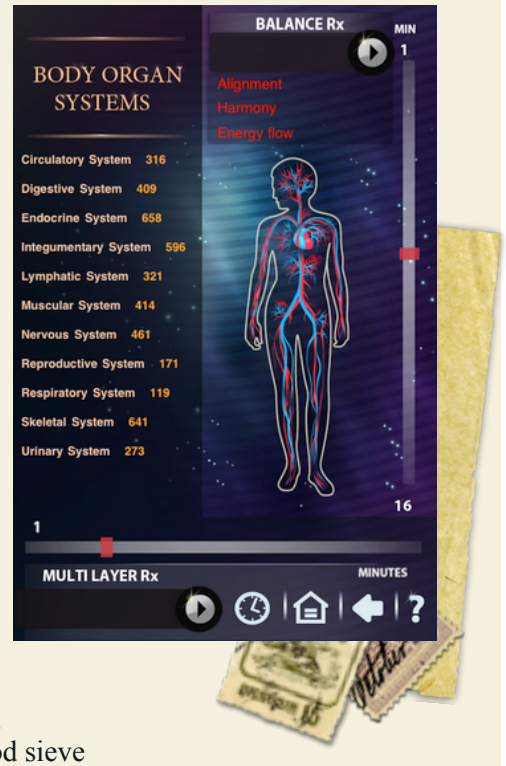
In the human digestive system, the main sites of digestion are the oral cavity, the stomach, and the small intestine. Digestive enzymes are secreted by different exocrine glands including:

Salivary glands
Secretory cells in the stomach.
Secretory glands in the pancreas.
Secretory glands in the small intestine.

Respiratory System
The primary function of the respiratory system is the supply of oxygen to the blood so this in turn delivers oxygen to all parts of the body. The respiratory system does this while breathing is taking place. During the process of breathing we inhale oxygen and exhale carbon dioxide. This exchange of gases takes place at the alveoli. The average adult's lungs contain about 600 million of these spongy, air-filled sacs that are surrounded by capillaries. The inhaled oxygen passes into the alveoli and then diffuses through the capillaries into the arterial blood. Meanwhile, the waste-rich blood from the veins releases its carbon dioxide into the alveoli. The carbon dioxide follows the same path out of the lungs when you exhale.
To put it simply, the principle functions of the respiratory system are:

- **V**entilate the lungs
- **E**xtract oxygen from the air and transfer it to the bloodstream
- **E**xcrete carbon dioxide and water vapor
- **M**aintain the acid base of the blood

Skeletal System
The adult human body contains roughly 206 bones, both fused and individual, which are supported by a system of ligaments, tendons, muscles and cartilage. We rarely think about bones until we break one, or until time forces us to consider the combined effects of gravity and age.
No doctor's or orthopedic surgeon's office can be considered complete without a Skeletal System chart, which shows the bones in the human body from both the front and rear. Diagrams within the chart also display and describe such skeletal features as the bones of the inner ear, important in maintaining balance, and the bones of the female pelvis, integral to gestation and birth. In addition, a complete diagram of the spinal column shows how attached bones of the neck, thorax and lower back maintain the curvature needed for this balancing act. Each bone is listed with its anatomical name, enabling doctors, surgeons and teachers to explain this complex miracle of upright stature to patients and students.



Urinary System
The urinary system is made up of kidneys, bladder, ureters and the urethra.
The human body has two kidneys, one on either side of the middle back, just under the ribs. Each kidney contains thousands of small filters called nephrons. Each nephron has a mesh of capillaries, connecting it to the body's blood supply. Around 180 liters of blood sieve through the kidneys every day. The main functions of the kidney include:

- Regulating the amount of water and salts in the blood
- Filtering out waste products
- Making a hormone that helps to control blood pressure.

Each kidney has a tube called a ureter. The filtered waste products (urine) leave the kidneys via the ureters and enter the bladder.
The bladder is a hollow organ that sits inside the pelvis. It stores the urine. When a certain amount of urine is inside the bladder, the bladder 'signals' the urge to urinate. Urine contains water and waste products like urea and ammonia. The urethra is the small tube connecting the bladder to the outside of the body.

Kidneys filter and regulate the blood.

Most waste products are removed from the body by the urinary system.

Waste products are passed in urine.

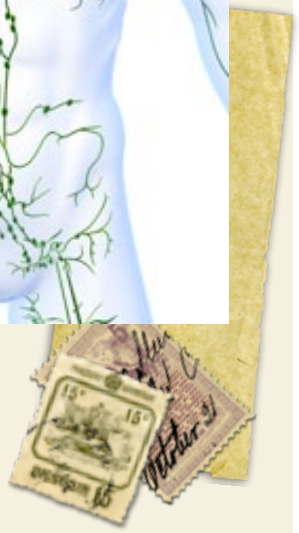
Lymphatic System
The lymphatic system is a component of the circulatory system. It is comprised of lymphatic ducts; lymphatic vessels; lymphatic capillaries; lymphatic connectors, nodes and lymph as well as the spleen.
90% of tissue fluid is constantly reabsorbed by the blood capillaries; the lymph constitutes the remaining 10% of the tissue fluid that is not picked up by the blood capillaries.
Vessels of the lymphatic system are found throughout most of the body. Lymphatic capillaries permeate the body's tissues and merge together into larger ducts, which follow the veins and arteries towards the centre of the body. These converge and eventually empty into the venous system via the thoracic and lymphatic ducts in the chest.
The primary role of the lymphatic system is to remove excess fluid, molecules and particles from the body's interstitial space. A significant percentage of the proteins and water that pass from the capillaries to body tissue is not directly taken back up by the venous system, and must instead be removed by the lymphatic system.
The lymphatic system also takes up products of tissue breakdown. As the lymph returns to the venous system, it must pass through the lymph nodes, where bacteria, viruses and other particles are removed. The lymph nodes act like mini incinerators, where they kill pathogens and trap cancer cells and slows down the spread of cancer until they are overwhelmed by it.

Nervous System
The nervous system is the means by which the body communicates messages to and from muscles and organs and maintains awareness of the outside world through the senses. The nervous system is divided into two areas;

- the central nervous system (CNS) consists of the brain and spinal cord and is enclosed within the skull and backbone
- the peripheral nervous system (PNS) comprises all other nerves.

The peripheral nervous system
Nerves connect the brain and spinal cord to the peripheral nervous system, which is what nerve tissue outside of the central nervous system is called. It is made up of two main parts: the autonomic and the somatic.

The autonomic nervous system
The autonomic nervous system is part of the peripheral nervous system. One of its main roles is to regulate glands and organs without any effort from our conscious minds. The central nervous system receives, processes and stores information and initiates instructions for bodily activities.The autonomic nervous system is made up of two parts: the sympathetic and the parasympathetic. These systems act on the body in opposite ways. Together, they coordinate a multitude of adjustments required for our changing personal needs as we move through our environment.



The somatic nervous system is also a part of the peripheral nervous system. One of its roles is to relay information from the eyes, ears, skin and muscle to the central nervous system (brain and spinal cord). Another role is to obey commands from the central nervous system and make muscles contract or relax, allowing us to move.