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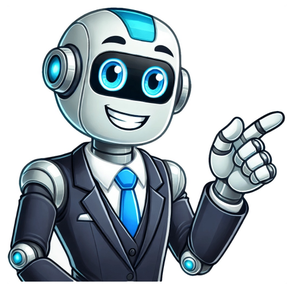

An organ system is a group of organs that work together in the body to perform a complex function, such as pumping blood or processing and utilizing nutrients. There are 11 major organ systems in the human body: The circulatory (cardiovascular) system The lymphatic system The respiratory system The integumentary system The endocrine system The gastrointestinal (digestive) system The urinary (excretory) system The musculoskeletal system The nervous system The reproductive system The immune system Organ systems work together to keep the body in good health. For example, the circulatory and digestive systems work jointly to deliver nutrients throughout the body. Except for the reproductive system, each system is necessary for survival. Peter Dazeley / Getty Images The circulatory system transports oxygen and nutrients to all corners of the body. It also carries away carbon dioxide and other waste products. When people talk about this organ system, they're usually talking about the cardiovascular system at large, which includes: The heartBloodBlood vessels (arteries and veins) The circulatory system maintains blood flow within a certain pressure range so that the blood can make it to everywhere it needs to go. Blood pressure that's too high puts extra stress on other organs and tissues. Low blood pressure means the blood—and its nutrients—won't make it to where it needs to go. The lymphatic system is the drainage system of the body. It plays an important role in your immunity, blood pressure regulation, digestion, and other functions. This organ system carries excess fluid, proteins, fats, bacteria, and other substances away from the cells and spaces between cells. It does this using: Lymph vessels Lymph nodes Lymph ducts Various glands The lymphatic vessels move the fluid into collecting ducts, which return the fluid to your bloodstream. The lymphatic system also helps create and circulate vital cells that fight disease, which is why it is also a part of the immune system. This includes lymphocytes and monocytes (white blood cells) and antibodies (proteins that recognize bacteria and viruses). The respiratory system is responsible for breathing, which is the controlled movement of air in and out of the body (ventilation). It also moves oxygen and carbon dioxide into and out of the bloodstream (respiration). This organ system contains the following: Lungs Trachea (windpipe) Airways of the respiratory tree One of the least understood responsibilities of the respiratory system is to help regulate the body's pH balance (the body's balance of acids and bases). Carbon dioxide is made into carbonic acid, which affects the pH balance. The respiratory system regulates this pH level when it releases carbon dioxide from the body. Breathing issues may indicate a condition that affects the body's acidity. The integumentary system is unique because it is the largest and only single-organ system in the body. It protects the body from the external environment and helps regulate body temperature. The integumentary system is the skin and all the structures in it, including: Sweat glandsHair folliclesNailsNerves The endocrine system mostly regulates metabolism and uses the products of digestion. Along with the nervous system and immune system, it's generally considered one of the most complicated systems in the body. This organ system includes all the glands that secrete hormones into the bloodstream, including: The gastrointestinal (GI) system is sometimes referred to as the gut or the digestive system. It is responsible for breaking down foods into nutrients, which the body needs for energy, growth, and cell repair. This system includes all the organs that carry food from where it enters the body to where it exits, including the following: MouthEsophagusStomachSmall intestineLarge intestineRectumAnus The pancreas, gallbladder, and liver are also part of this organ system. The GI tract and the endocrine system have a lot of interaction. The endocrine system produces the hormones that regulate digestion and the absorption of nutrients. The GI system also owes a lot to the vagus nerve, the main contributor to the parasympathetic nervous system, which regulates bodily functions. The vagus nerve is involved in slowing metabolism, lowering heart rate and blood pressure, and stimulating the mechanics of digestion. Some organs belong to more than one organ system. The pancreas, for example, can be considered a part of the digestive system because it secretes enzymes that help the body break down fat, protein, and starch. It is also part of the endocrine system because it produces hormones that help regulate blood sugar. The urinary system includes: Kidneys Ureters Bladder Urethra These organs work together to filter blood and remove toxins and waste from body tissues. The removal of excess fluid through this organ system also helps regulate blood pressure. The musculoskeletal system provides the framework and the engine for our movement, posture, and physical abilities. This organ system includes: The skeletonAll the muscles, tendons, and ligaments attached to the skeleton There are three types of muscles in the body: Skeletal (voluntary)Smooth (visceral or involuntary), which are inside walls of organs like the intestinesCardiac (heart muscle) Only skeletal muscle is considered part of the musculoskeletal system. Your body's skeletal system contains 206 bones: The 80 bones of the axial skeleton (your spine and the core of your body)The 126 bones in the appendicular skeleton (your arms, legs, and bones away from the core) In addition to providing your body's structure and facilitating its mobility, the skeletal system contains bone marrow to produce blood and lymph cells. It stores fat in the body, as well as key minerals like calcium. The nervous system is a network that makes it possible for different parts of the body to communicate with one another. Think of it as your body's command station. All body processes, reactions, thoughts, and movements stem from this organ system. The nervous system is incredibly detailed and includes: The Central Nervous System The Peripheral Nervous System All the nerves connected to both of these organs The nervous system contains the only tissue that isn't fed directly through contact with blood. The immune system helps the body fight against infection and other diseases. All of its organs are borrowed from other organ systems. Because of the interplay between organs from various other systems, the immune system is one of the most complicated systems of all. The primary organs of the immune system include: Lymph nodes Bone marrow Thymus Spleen Adenoids Tonsils Skin Immune system organs work like sailors on a ship: Each one has a primary duty and is cross-trained for other jobs. This is the only organ system that is not complete in any one body and requires another person (or medical intervention) to complete its mission, producing offspring. The male reproductive system consists of the: EpididymisTestesProstateAs well as the external structures of the scrotum and penis. The female reproductive system consists of the: Aside from their direct roles in reproduction, the ovaries and testicles also play important roles in the endocrine system, producing estrogen, testosterone, and progesterone. The body has 11 different organ systems. Each group of organs has a different complex function, such as movement, breathing, or digestion. In some cases, one system works closely with another on a particular task. For example, the endocrine system interacts with the gastrointestinal system to control digestion and metabolism. When your organ systems are working properly, they help your body stay in balance and maintain your health. Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. 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This body organs location chart will show you where vital organs like the heart, lungs, liver, and kidneys are in your body. Use this guide to better understand your anatomy. Body organs are the specialized structures within us that perform essential functions to keep us alive and well. These internal organs are part of various organ systems that ensure our bodies operate smoothly. From the heart pumping blood to the lungs facilitating breathing, each organ has a specific job that contributes to our overall health. It is important to understand how these organs exist within the framework of our biological systems. The human body is composed of 11 distinct organ systems, each responsible for crucial functions that sustain life. These organs consist of groups of organs working together to execute complex tasks. We'll now explore the major organs and their vital roles. The heart, for instance, is the engine of our body, tirelessly pumping blood to supply oxygen and nutrients while removing waste. Located slightly left of the center of the chest, it is protected by the ribcage. The liver, positioned in the upper right quadrant of the abdomen, is a powerhouse in nutrient processing, detoxifying harmful substances, and producing bile for digestion. Meanwhile, the brain, nestled within the skull, is the control center managing everything from thought and memory to bodily movements. Our kidneys, located at the back of the abdominal cavity, filter blood, remove waste, and regulate fluid balance. The lungs, situated in the thoracic cavity on either side of the heart, facilitate gas exchange, allowing us to breathe in oxygen and expel carbon dioxide. For instance, the heart is situated slightly to the left of the chest, while the lungs flank the heart on either side within the thoracic cavity. The liver occupies the upper right quadrant of the abdomen, just below the diaphragm, and the stomach is nestled between the esophagus and small intestine in the upper middle region of the abdomen. The human body comprises intricate organ systems, each pivotal for health and functionality. These organ systems work together to perform complex tasks that sustain life. For example, while the kidneys filter blood and regulate fluid balance, they also contribute to hormonal regulation. Each organ system, from the muscular to the digestive, is designed to perform specific functions that keep our bodies running efficiently. These systems offer a comprehensive view of bodily function and homeostasis. The skeletal system serves as the body's framework, providing structure and support while protecting vital organs. Comprising 206 bones in adults, this structural unit also includes cartilage and ligaments. These bones not only give us shape but also facilitate movement through joints and protect internal organs from injury. The skeletal system is fundamental to our overall health, offering both physical support and protection. The muscular system is responsible for enabling movement by working in conjunction with the skeletal system. Muscles contract and pull on bones, allowing us to move. This interaction is crucial not only for locomotion but also for maintaining posture. See also Why Do Elderly Sleep So Much and How to HelpMuscles and bones collaborate to enable activities like walking, running, lifting, and bending. The muscular system, therefore, plays a vital role in our daily lives. The nervous system is the body's communication network, comprising the brain, spinal cord, and peripheral nerves. This system controls and coordinates bodily functions through electrical signals, ensuring we respond appropriately to internal and external stimuli. The brain and spinal cord are central to this system, managing everything from sensory processing to motor responses. The nervous system is vital for life and our interaction with the environment. The digestive system is a complex network of organs that work together to break down food and absorb nutrients. Key organs include: The stomach, which mechanically and chemically breaks down food The pancreas, which produces digestive enzymes The liver, which processes nutrients and detoxifies harmful substances These organs play significant roles in the digestive process. Accessory organs such as the gallbladder store and release bile, which aids in the digestion of fats. Accessory organs are vital in digestion, aiding in nutrient breakdown and absorption. Salivary glands, including the parotid, submandibular, and sublingual, secrete saliva to initiate digestion by moistening food and beginning the breakdown of carbohydrates. The gallbladder stores bile produced by the liver, releasing it into the small intestine to aid in fat digestion. These accessory organs, while not part of the main digestive tract, are essential for efficient digestion. The cardiovascular system is a dynamic network that includes: the heart arteries veins capillaries This system is responsible for circulating blood and transporting oxygen and nutrients throughout the body. The heart pumps blood through the arteries, veins, and capillaries, ensuring that all tissues receive the necessary oxygen and nutrients for survival. The cardiovascular system is crucial for life and health. Blood is a vital fluid composed primarily of plasma, which constitutes about 55% of its volume. Plasma contains water, proteins, and other dissolved substances, serving as the medium for transporting nutrients and waste throughout the body. Red blood cells, responsible for carrying oxygen, have an average lifespan of about 120 days before being recycled by the liver and spleen. White blood cells play a crucial role in immune defense, protecting the body from infections. The respiratory system facilitates gas exchange, allowing us to breathe in oxygen and expel carbon dioxide. Air enters through the mouth or nose, traveling through the pharynx to the trachea, which is reinforced with cartilage rings to prevent collapse. Within the lungs, the trachea divides into left and right bronchi, leading to smaller branches known as bronchioles. Gas exchange occurs in the alveoli, tiny air sacs that inflate during inhalation and deflate during exhalation. The urinary system consists of the kidneys, bladder, and urethra, working together to filter waste from the blood and regulate fluid levels. The kidneys filter approximately 150 quarts of blood daily, producing 1 to 2 quarts of urine as waste. The bladder serves as a storage reservoir for urine, allowing for controlled elimination from the body. The urethra is the duct through which urine is expelled during urination. The kidneys perform several critical functions, including filtering waste products from the blood and excreting them in urine. Each kidney contains about a million filtering units called nephrons, which are responsible for blood filtration and urine formation. In addition to waste removal, the kidneys help maintain electrolyte balance by regulating levels of sodium, potassium, and other ions in the bloodstream. This balance is crucial for the normal functioning of nerves and muscles. See also How Much Exposure to Asbestos Is Dangerous? The endocrine system is responsible for the production and release of hormones, which are vital chemical messengers that regulate various bodily functions. Key glands include the pituitary gland, which regulates other endocrine glands and releases multiple hormones. The thyroid gland in the neck manages metabolism through hormone secretion, while the adrenal glands atop the kidneys release hormones involved in stress and metabolic processes. Hormones are essential for maintaining homeostasis, including balancing blood sugar levels and regulating body temperature. The reproductive system comprises organs that facilitate reproduction and hormone production. In males, organs such as the testes generate sperm, while the prostate gland contributes to semen production. In females, the ovaries produce eggs and hormones like estrogen, and the uterus serves as the site for embryo implantation and development. The fallopian tubes transport fertilized eggs to the uterus, and the cervix acts as a passage between the uterus and vagina. The integumentary system, comprising the skin, hair, and nails, is the body's largest organ and acts as a protective barrier against external elements. The skin is composed of two main layers: the outer epidermis, which provides a barrier, and the deeper dermis, which supports and nourishes the epidermis. Hair aids in shielding the skin and enhancing sensory perception, while nails protect the tips of fingers and toes. The integumentary system also plays a crucial role in thermoregulation, adjusting blood flow and sweat production to maintain body temperature. Additionally, it participates in immunity by serving as a physical barrier and containing antimicrobial peptides that inhibit pathogen growth. The lymphatic system is a network of organs, vessels, and tissues that plays a crucial role in defending the body against infections and managing fluid levels. Lymph nodes, approximately 600 in number, are small, bean-shaped structures that filter lymph fluid, removing damaged and cancerous cells. The spleen, the largest organ of the lymphatic system, filters blood and recycles red blood cells, while the thymus is essential for the maturation of T-cells, a type of white blood cell vital for immune response. White blood cells, or leukocytes, circulate in the lymph, helping to protect the body from infections. Vital organs like the brain, heart, kidneys, lungs, and liver are essential for survival and are strategically located to perform their functions efficiently. Additionally, understanding the main organs enhances our knowledge of overall health. The head and neck region houses several major organs. The brain, protected by the cranial bones, is the control center of the body. The eyes and ears are essential for sensory perception, while the mouth plays a crucial role in digestion and communication. The thyroid gland, located in the neck anterior to the trachea, is vital for hormone production and metabolic regulation. Knowing the exact locations of these organs aids in appreciating their functions and importance. The thoracic region, or chest area, contains critical organs such as the heart and lungs. The heart is positioned slightly to the left of the center of the chest within the mediastinum, while the lungs flank the heart on either side within the thoracic cavity. Other important structures in this region include the esophagus and trachea, which play essential roles in digestion and respiration respectively. Knowing the thoracic region's anatomy is essential to recognize how these organs work together for health. See also Head Feels Cold Inside: Causes, Symptoms & Treatment The abdominal region is home to several vital organs involved in digestion and metabolism. The liver, occupying the right upper quadrant of the abdomen, is crucial for nutrient processing and detoxification. The stomach, located in the upper middle region, plays a key role in breaking down food. The pancreas, located behind the stomach, aids in digestion and blood sugar regulation, while the kidneys, positioned at the back of the abdominal cavity, filter blood and regulate fluid balance. The small and large intestines complete the digestive process by absorbing nutrients and expelling waste. The pelvic region contains organs involved in waste elimination and reproduction. The bladder, located in the pelvic cavity posterior to the pubic bone, serves as a reservoir for urine. Reproductive organs, such as the ovaries and uterus in females and the testes and prostate in males, are also located here. These organs play crucial roles in reproductive health and hormone production. The limbs and extremities contain muscles, bones, and nerves that are vital for movement and dexterity. Muscles in the limbs are responsible for movement and are attached to bones via tendons. The femur, the longest bone in the human body, is located in the thigh. Knowing the anatomy of limbs and extremities helps appreciate daily activities and balance. Internal human organs silhouette composition with human body internal organs headline and descriptions in circles vector illustration The thoracic cavity houses the heart and lungs, protected by the rib cage, while the abdominal cavity contains the liver, stomach, kidneys, and intestines. Anatomical charts, such as those provided by the Anatomical Chart Company, are invaluable tools for visualizing and learning the exact locations of these organs. These charts help in educational settings and are useful for anyone interested in exploring human anatomy in detail. The upper body includes the thoracic and neck regions. The heart is slightly left of center in the thoracic cavity, while the lungs are located on either side. The neck houses essential organs such as the thyroid gland and major blood vessels connecting the head to the body. The thyroid gland is situated just below the Adam's apple in the neck region, playing a critical role in hormone secretion and metabolism regulation. The lower body includes the abdominal and pelvic regions. The kidneys are positioned at the back of the abdominal cavity, responsible for filtering blood and regulating fluid balance. The bladder is located in the pelvic cavity, serving as a reservoir for urine before it is expelled from the body. These anatomical charts are essential for visualizing the lower body's organ locations and understanding their functions. The major organs in our body are the heart, brain, liver, kidneys, and lungs—they're all crucial for keeping us healthy and functioning properly. So, it's important to take care of them! The liver is tucked away in the upper right part of your abdomen, right under the diaphragm. It's an important organ, so knowing where it is can be pretty handy! The kidneys filter your blood, getting rid of waste while also keeping your fluids and electrolytes in check. They're essential for maintaining your body's balance! The cardiovascular system works by pumping blood through the heart and a network of blood vessels, delivering oxygen and nutrients to your body while removing waste. It's all about keeping everything flowing smoothly! The endocrine system is all about hormones; it regulates key functions like metabolism, growth, and how your body handles stress. So, it plays a crucial role in keeping everything in balance! Author: Jana Vasković, MD • Reviewer: Nicola McLaren, MSc Last reviewed: November 03, 2023 Reading time: 24 minutes Digestive system - anterior view. The human body is a biological machine made of body systems; groups of organs that work together to produce and sustain life. Sometimes we get lost while studying about cells and molecules and can't see the forest for the trees. It can be helpful to step back and look at the bigger anatomical picture. This topic page will provide you with a quick introduction to the systems of the human body, so that every organ you learn later on will add a superstructure to the basic concept you adopt here. Key facts about the human body systems System of organs A group of organs that work together to perform one or more functions in the body. Musculoskeletal system Mechanical support, posture and locomotion Cardiovascular system Transportation of oxygen, nutrients and hormones throughout the body and elimination of cellular metabolic waste Respiratory system Exchange of oxygen and carbon-dioxide between the body and air, acid-base balance regulation, phonation. Nervous system Initiation and regulation of vital body functions, sensation and body movements. Digestive system Mechanical and chemical degradation of food with purpose of absorbing into the body and using as energy. Urinary system Filtration of blood and eliminating unnecessary compounds and waste by producing and excreting urine. Endocrine system Production of hormones in order to regulate a wide variety of bodily functions (e.g. menstrual cycle, sugar levels, etc) Lymphatic system Draining of excess tissue fluid, immune defense of the body. Reproductive system Production of reproductive cells and contribution towards the reproduction process. Integumentary system Physical protection of the body surface, sensory reception, vitamin synthesis. The skeletal system is composed of bones and cartilages. There are two parts of the skeleton; axial and appendicular. The axial skeleton consists of the bones of the head and trunk. The appendicular skeleton consists of the bones within the limbs, as well as supporting pectoral and pelvic girdles. There are 206 bones in an adult human body. The place at which two bones are fitted together is called the joint or articulation. Joints are supported by cartilages and reinforced with ligaments. Functions of the skeletal system are mechanical support, movement, protection, blood cell production, calcium storage and endocrine regulation. Elements of the skeletal system are adjusted to the function of the body part they support. Thus, the anatomy of bones, joints and ligaments is studied topographically, as the bones of the; head and neck, thorax, abdomen, upper and lower limbs. Get started with skeletal system anatomy by checking out the study unit and custom quiz below. The muscular system consists of all the body muscles. There are three muscle types; smooth, cardiac and skeletal muscles. Smooth muscle is found within walls of blood vessels and hollow organs such as the stomach or intestines. Cardiac muscle cells form the heart muscle, also called the false. Skeletal muscles attach to the bones of the body.Among these three, only skeletal muscles can be controlled consciously and enable us to produce body movement, while the function of other two muscle types is regulated by the autonomic nervous system and is absolutely unconscious. Histologically, skeletal and cardiac muscle fibers are arranged in a repetitive fashion giving a striped appearance, hence are called striated muscle. Smooth muscle does not contain repetitive sarcomeres, thus is non-striated muscle. Learn all about the muscular system in the study unit below, or consolidate what you already learned with our fully customizable quiz. The cardiovascular system is comprised of the heart and the circulatory system of blood vessels. The heart is composed of four chambers; two atria and two ventricles. Blood enters the heart through the upper chambers of the left and right atria and exits via the left and right ventricles. Heart valves prevent the backflow of blood. The heart acts as a two-way pump. The right side of the heart pumps deoxygenated blood into the pulmonary circulation of the lungs, where the blood is reoxygenated again. While the left side of the heart simultaneously pumps oxygenated blood into the systemic circulation, distributing it to the peripheral tissues. The regular pumping, or heartbeat, is controlled by the conduction system of the heart. The circulatory system, also called the vascular system, consists of arteries, veins and capillaries. They all comprise a continuous network of vessels which act to carry blood around the body. Blood leaves the heart via arteries, these progressively reduce in size to continue as smaller arterial vessels called arterioles. Arterioles end in a web of even smaller vessels called capillaries. The exchange of gases and nutrients occurs through the capillary walls. Small veins, called venules, leave from capillaries and gradually increase their lumen on the way to the heart to end as veins. There is a certain histological difference between arteries and veins, but their main functional difference reflects the direction in which they conduct blood: the arteries convey blood from the heart to the periphery, whereas the veins convey blood from the periphery to the heart. There are three separate circuits to the circulatory system. The pulmonary circulation which carries blood between the heart and the lungs; The coronary circulation which supplies blood to the muscle of the heart; And the systemic circulation which carries blood to the rest of the body. Major arteries within the systemic circulatory system are the aorta and its branches, while the main representatives of the veins are the superior vena cava and inferior vena cava. Learn everything about the heart, arteries and veins faster with our cardiovascular system diagrams, quizzes and free worksheets. Major functions of the cardiovascular system include transportation of oxygen, nutrients and hormones throughout the body within the blood, and as well as eliminating carbon dioxide and other metabolic waste. Learn more about the major arteries, veins and nerves of the body with Kenhub resources! The respiratory system consists of a series of organs; the nasal cavity, pharynx, larynx, trachea, bronchi, bronchioles and lungs (alveoli). The nasal cavity and pharynx are together called the upper respiratory system, while the remainder of the organs comprise the lower respiratory system. Respiratory system organs, with the exception of the alveoli, function to conduct air into the lungs aided by the muscles of respiration (mainly the diaphragm and intercostal muscles). Once air is in the lungs it enters alveoli (the site of gas exchange) and interacts with blood transported by the pulmonary circulation. Here carbon dioxide is removed from, and oxygen returned to, the blood. Thus the major respiratory system function is to bring oxygen into the body and expel carbon dioxide. Fortify your knowledge about the respiratory system with this content we have prepared for you. Nervous system controls how we interact with and respond to our environment, by controlling the function of the organs in our other body systems. The nervous system organs are the brain, spinal cord and sensory organs. These are connected by neurons, which act to transmit neural signals around the body. Morphologically and topographically, the nervous system is divided into the central (CNS) and peripheral (PNS) nervous systems. Whilst functionally, the nervous system is considered as two parts; the somatic (SNS) or voluntary nervous system, and the autonomic (ANS) or involuntary nervous system. The central nervous system definition is that it receives information from the body's environment and generates instructions, thereby controlling all the activities of the human body. This two-way information flow into, and out of, the CNS is conveyed by the peripheral nervous system. The CNS consists of the brain and spinal cord. The brain is placed within the neurocranium, and is formed from the cerebrum, cerebellum and brainstem (pons and medulla oblongata). The central parts of the CNS are occupied by spaces called ventricles filled with cerebrospinal fluid (CSF). The spinal cord is placed within the vertebral column. The spinal canal extends through the central part of the spinal cord. It is also filled with CSF and it communicates with the ventricles of the brain. The CNS is made of neurons and their processes (axons). Gray matter is made of neuron cell bodies, it is found in the cerebral cortexand the central portion of the spinal cord. White matter is made of axons, which combine and build neural pathways. The gray matter is where the instructions generate, while the white matter is the path through which the instructions travel toward the organs. The peripheral nervous system definition is that it conducts information from the CNS to the target tissues, and from the target tissues to the CNS. It consists of nerves and their ganglia. Nerves that carry information from peripheral sense organs (for example eye, tongue, nasal mucosa, ear, skin) to the CNS are called the ascending, afferent or sensory nerve fibers. Fibers that carry information from the CNS to the periphery (muscles and glands) are the descending, efferent, motor or secretory nerve fibers. A ganglion is a cluster of neural tissue outside of the CNS, made of neuronal cell bodies. Ganglia can be both sensory and autonomic. Sensory ganglia are associated with spinal nerves and some cranial nerves (V, VII, IX, X). Peripheral nerves emerge from the CNS. There are 12 pairs of cranial nerves which arise from the brain, and 31 pairs of spinal nerves which extend from the spinal cord. Cranial nerves are named I to XII, determined by their skull exit location (anterior to posterior). Spinal nerves are divided into 8 cervical, 12 thoracic, 5 lumbar, 5 sacral and 1 coccygeal nerve, depending on vertebral level from which they arise. In certain areas of the body peripheral nerves interconnect, creating neural networks called plexuses. Notable plexuses are the: Cervical plexus (C1-C4) – innervates the back of the head, some neck muscles, pericardium and diaphragm via great auricular, transverse cervical nerve, lesser occipital, supraclavicular, and phrenic nerves. Brachial plexus (C5-T1) – innervates the upper limb with nerves such as median, ulnar, radial, musculocutaneous and axillary nerve. Lumbar plexus (L1-L4) – innervates the muscles and the skin of the abdomen and pelvis, as well as thigh muscles via iliohypogastric, ilioinguinal, genitofemoral, lateral femoral cutaneous, obturator, femoral nerves. Sacral plexus (S1-S4, with branches from L4, L5) – innervates the muscles and skin of parts of the pelvis, posterior thigh, lower leg and foot via the following nerves; gluteal, sciatic, posterior femoral cutaneous, pudendal, nerve to piriformis, nerve to obturator internus, and nerve to quadratus femoris. The somatic nervous system (SNS) and autonomic nervous system (ANS) are divisions of the peripheral nervous system, with information conveyed through the cranial and spinal nerves. The somatic nervous system definition is that it allows voluntary control over our movements and responses. It conveys sensory and motor information between the skin, sensory organs, skeletal muscles and the CNS; establishing communication of the human body with its environment and response to outside stimuli. Major somatic peripheral nerves include the median nerve, sciatic nerve and femoral nerve. The autonomic nervous system definition is that it controls all the internal organs unconsciously, through the associated smooth muscle and glands. Functionally, the ANS is divided into sympathetic (SANS) and parasympathetic (PANS) autonomic nervous systems. The sympathetic nervous system definition is informally known as producing the „flight or fight" state as it is the part of the ANS which is mostly active during stress.PANS dominates during rest, and is more active in „rest and digest" or „feed and breed" activities. The centers of SANS and PANS are within the brainstem and spinal cord, and they communicate with SANS and PANS ganglia located throughout the body. Note that there isn't any pure SANS or pure PANS nerve, instead their fibers are added to the specific somatic nerves, making them mixed. The digestive system function is to degrade food into smaller and smaller compounds, until they can be absorbed into the body and used as energy. It consists of a series of gastrointestinal tract organs and accessory digestive organs. The digestive system organs spread from the mouth to the anal canal. So it's actually a tube consisting of the mouth, pharynx, esophagus, stomach, small intestine, large intestine, and anal canal. Accessory digestive organs assist with the mechanical and chemical food breakdown, these are the tongue, salivary glands, pancreas, liver and gallbladder. Master the digestive system anatomy starting with this study unit and custom quiz: Urinary system is a body drainage system comprised of the group of organs that produce and excrete urine. It consists of the kidneys, ureters, urinary bladder and urethra. Kidneys are paired bean-shaped organs placed retroperitoneally. The kidneys have a rich blood supply provided by the renal artery. Nephrons within the kidneys filter the blood that passes through their web of capillaries (glomerulus). The blood filtrate then passes through a series of tubules and collecting ducts, eventually forming the final ultrafiltrate, urine. Urine passes into the ureters, tubes of smooth muscle that convey urine from the kidneys to the urinary bladder. The bladder is a hollow muscular organ that collects and stores urine before disposal by urination (micturition). Functions of the urinary system include; elimination of body waste, regulation of blood volume and blood pressure, regulation of electrolyte levels and blood pH. Get started with the urinary system with these resources: The endocrine system is a collection of specialised organs (endocrine glands) scattered throughout the body that act to produce hormones. The main organs of the endocrine system can be seen in the diagram below. With regards to the endocrine system function; hormones produced by the endocrine system act to regulate a wide variety of bodily functions, such as triiodothyronine which regulates metabolism, or estrogen and progesterone which regulate the menstrual cycle. Endocrine glands secrete hormones directly into the circulatory system to regulate the function of distant target organs. We have you covered with everything you need to know about the endocrine system here. The lymphatic system is a network of lymphatic vessels that drains excess tissue fluid (lymph) from the intercellular fluid compartment, filters it through lymph nodes, exposes it to lymphocytes (white blood cells) of the immune system and returns the fluid to the circulatory system. The lymphatic system consists of lymph, lymphatic plexuses, lymphatic vessels, lymph nodes and lymphoid organs. The lymphatic system function is to; convey and eliminate toxins and waste from the body; recirculate proteins; and defend the body from microorganisms. Lymph is a watery tissue fluid with a similar consistency to blood plasma. It starts as interstitial fluid which occupies the spaces between cells. Excess fluid is picked up by lymphatic capillaries and transported through lymphatic plexuses into lymphatic vessels, filtering through lymph nodes along its journey. Superficial lymphatic vessels are found in the subcutaneous tissue alongside veins. They drain into deep lymphatic vessels that follow the arteries. Lymphatic vessels empty into larger lymphatic trunks, which unite to form one of the two main collecting ducts; the thoracic duct and the right lymphatic duct. The thoracic duct begins at the cisterna chyli, collecting lymph from the left side of head, neck and thorax, left upper limb, abdomen and both lower limbs and draining it into the left venous angle (junction of the left internal jugular and left subclavian veins). The right lymphatic duct drains the rest of the body and empties into the right venous angle. From the venous angles, cleaned lymph is returned to the circulatory system, rejoining with the fluid of the blood. Note that the central nervous system was previously thought to have no lymphatic vessels. However, recent research has shown its lymph is drained by lymph vessel-like structures found in the meninges. Lymphatic system organs are divided into primary and secondary organs. Primary lymphatic organs produce lymphocytes and release them into lymphatic vessels. The two primary lymphoid organs are the thymus and red bone marrow. Secondary lymphatic organs include lymph nodes, tonsils, appendix and spleen. Lymph nodes are masses of lymphocyte containing lymphoid tissues, attached to lymphoid vessels. Lymph nodes function to filter cellular debris, foreign pathogens, excess tissue fluid, and leaked plasma proteins. There are aggregations of lymph nodes at key points around the body (cervical, axillary, tracheal, inguinal, femoral, and deep nodes related to the aorta). The reproductive system, or genital system, is a system of internal and external sex organs which work together to contribute towards the reproduction process. Unlike other systems of organs, the genital system has significant differences among sexes. The external female sex organs, also known as the genitals, are the organs of the vulva (the labia, clitoris, and vaginal opening). The internal sex organs are the ovaries, fallopian tubes, uterus and vagina. The vulva provides an entry to, and protection, for the vagina and uterus, as well as the proper warmth and moisture that aids in its sexual and reproductive functions. In addition, it is important for the sexual arousal and orgasm in females. The vagina is the canal leading from the outside of the body to the cervix (neck) of the uterus. Ovaries secrete hormones and produce egg cells, which are transported to the uterus fallopian tubes. The uterus provides protection, nutrition, and waste removal for the developing embryo and fetus. In addition, contractions in the muscular wall of the uterus contribute to pushing out the fetus at the time of birth. The external male sex organs are the testes and penis, while the internal are the epididymis, ductus deferens and accessory glands. Functionally, they can be grouped into three categories.The first category is for sperm production (the testes), and storage (epididymis). The second category organs produce ejaculatory fluid; the ductus deferens and the accessory glands (seminal vesicles and prostate). The final category is those used for copulation and deposition of the sperm, these include the penis, urethra and ductus deferens. The integumentary system is the set of organs that forms the external covering of the body. It includes the skin, skin appendages, sweat glands and sensory receptors. The skin is the largest organ of the body. It has three layers; epidermis, dermis and hypodermis. The epidermis is a thick keratinized epithelium made of multiple cell layers. Underneath the epidermis is the dermis, a layer of connective tissue that contains blood vessels and nerves