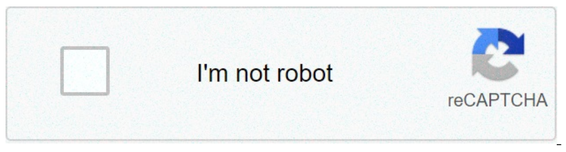

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Structure of human brain pdf

central organ of the human nervous system brainHuman human brain and skullUpper lobes of the cerebral hemispheres: the frontal lobes (pink), the parietal lobes (green), occipital lobes (blue) DetailsPrecursorNeural nervous tubeSystemCentral systemArteryInternal carotid arteries, vertebral arteriesVeinInternal jugular vein, internal cerebral veins; external veins: (cerebral veins upper, middle and lower), basal vein, and cerebellar veinsIdentifiersLatinCerebrum [1] GreekÃ¡Â¼ Â³Ã ÂºÃ Â Ã Ã Â ± Ã Â »Ã Â¿Ã (Enka Â © phalos) [2] MeSHD001921TA98A14.1.03.001TA25415FMA50801Anatomical terminology [edit the Wikidata] the human brain is the central organ of the human nervous system, and with the spinal cord make up the central nervous system. The brain is made up of the brain, brain stem and cerebellum. It controls most of the activities of the body, processing, integrating and coordinating the information it receives from the sense organs, and make decisions regarding the instructions sent to the rest of the body. The brain is contained in, and protected by, the skull bones of the head. The brain, most of the human brain, is made up of two cerebral hemispheres. Each hemisphere has an inner core composed of white matter, and an outer surface of a cerebral cortex Ã ¢ composed of gray matter. The bark has an outer layer, the neocortex and an internal allocortex. The neocortex has six neuronal layers, while the allocortex has three or four. Each hemisphere is conventionally divided into four lobes to the frontal, temporal, parietal and occipital lobes. The front lobe is associated with executive functions, including self-control, planning, reasoning and abstract thinking, while the occipital lobe is dedicated to vision. From each lobe, cortical areas are associated with specific functions, such as sensory, engines and association regions. Although the right and left hemispheres are substantially similar in form and function, some functions are associated with one side, like the language in the left and visual-spatial capacity in the right. The hemispheres are connected by strokes of nervous commissurals, the biggest is the callous body. The brain is connected by the cerebral trunk to the spinal cord. The encephalic trunk consists of mesencephalus, the bridge and the elongated marrow. The cerebellum is connected to the cerebral trunk from three couples of nervous traits called cerebellar peduncles. Within the brain it is the ventricular system, consisting of four interconnected ventricles in which the cerebrospinal fluid is produced and distributed. Under the cerebral cortex there are several important structures, including the thalamus, the epitalamus, the pineal gland, hypothalamus, pituitary gland, and subthalamus; limbic structures, between amygdala and the hippocampus; Claustrum, the various nuclei of the base ganglia; The basal Forebrain structures, and the three circumventricular organs. Brain cells are neurons and glial support cells. There are more than 86 billion neurons in the brain, and a number more or less than other cells. Cerebral activity is made possible by neuron interconnections and their release of neurotransmitters in response to nerve impulses. The neurons connect to form neural paths, neural circuits, and processed network systems. The entire circuit is driven by the neurotransmission process. The brain is protected by skull, suspended in cerebrospinal liquid, and isolated from blood flow from brain barrier BloodÃ ¢. However, the brain is still susceptible to damages, diseases and infections. Damage can be caused by a trauma, or a lack of blood flow known as a stroke. The brain is susceptible to degenerative diseases, such as Parkinson's disease, dementium, including Alzheimer's disease and multiple sclerosis. psychiatric conditions, including schizophrenia and clinical depression, are thought to be associated with dysfunctions The brain can also be the site of both benign that malignant; These come mainly from other sites in the body. The study of the brain anatomy is neuroanatomy, while the study of its function is neuroscience. Numerous techniques are used to study the brain. The samples of other animals, which can be examined under the microscope, have traditionally provided a lot of information. Medical imaging technologies such as neuroimaging functional recordings and electroencephalography (EEG) are important in the brain study. The medical history of people with brain lesions has provided information on the function of every part of the brain. Cerebral research has evolved over time, with philosophical, experimental and theoretical phases. An emerging phase could be to simulate the cerebral activity [3] in culture, the philosophy of the mind tried for centuries to address the issue of the nature of consciousness and the problem of the body of the mind. The pseudoscience of the frenology has tried to locate the attributes of the personality to the cortex regions in the 19th century. In science fiction, brain transplants are imagined in stories like Donovan's brain 1942. Human brain structure (Sagittal section) See also: List of regions in the human brain and profile of the gross anatomy resonance scan of a human brain of a human brain See also: Brain evolution Ã ¢ Â§Ã¸ã, "Evolution of the human brain and neuroscience of sexual differences the adult human brain weighs on average about 1.2 - 1.4 kg (2.6 "3.1 lb) which is about 2% of total body weight, [4] [5] With a volume of about 1260. CM3 in men and 1130 cm3 in women. [6] There is a substantial individual variation, [6] with the standard reference range for men of 1.180 Ã ¢ â,¬ "1.620 g (2.60" 3.57 pounds) [7] and for women 1.030 - 1,400 g (2.27 Ã ¢ â,¬ "" 3.09 pounds). [8] Cerebro, consisting of brain hemispheres, is the largest part of the brain and overlaps with other brain structures. [9] The external region of the hemispheres, the cerebral cortex, is gray matter, composed of cortical layers of neurons. Each hemisphere is divided into four main lobes - the frontal lobe, the parietal lobe, the temporal lobe and the occipital lobe. [10] Other three three lobes are included from some sources that are a central lobe, a limbic lobe and an insular lobe. [11] The central lobe includes the Gyrus Pressral and the Postcentral Gyrus and is included as it constitutes a distinct functional role. [11] [12] The cerebral trunk, similar to a stem, attacks and leaves the cerebro at the beginning of the Mezzale area. The cerebral trunk includes mesencephalus, pons and oblong marrow. Behind the cerebral is the cerebellum (Latin: small brain). [9] Cerebro, cerebral, cerebellum and spinal cord are covered by three membranes called meninges. The membranes are hard tough Mater; The middle arachnoide center and the most delicate flat interior. Among the Arachnoid Mater and the Pia Mater is the Subaracnoid Space and the Subaracnoideli tanks, which contain the cerebrospinal fluid [13]. The most external membrane of the cerebral cortex is the basement membrane of the Pia Mater called the limits of the Glia and is an important part of the brain barrier of blood. [14] The living brain is very soft, having a consistency similar to a gel similar to the soft tofu. [15] The cortical layers of neurons constitute most of the cerebral gray matter, while the most profound subcortical regions of axons donolids, constitute white matter. [9] The white matter of the brain is about half of the total brain volume. [16] Structural and functional areas of the brain brain of the human brain bisected in the sagittal plane, showing the white matter of the areas of Corpus Callosumfunctional of the human brain. The areas Show are commonly left Hemisphere Dominant Cerebrum Main items: cerebrum and greater cerebral cortex Gyri and sulci on the lateral surface of the brain bark lobes The brain is the largest part of the brain, and is divided into almost symmetrical to the left and right hemispheres From a deep groove, IL IL Fixed. [17] Asymmetry between lobes is known as Petalia. [18] The hemispheres are connected by five commissures that extend over the longitudinal slit, the largest of these is the Corpus Callosum. [9] Each hemisphere is conventionally divided into four main lobes; The front lobe, the parietal lobe, the temporal lobe and the occipital lobe, named according to the bones of the skull that overlooks it. [10] Each lobe is associated with one or two specialized functions even if there are some functional overlaps between them. [19] The surface of the brain is folded into ridges (Gyri) and Grooves (Sulci), many of which are appointed, usually based on their position, as the frontal lap of the frontal lobe or the central groove that separates the regions Hemisphere centers. There are many small variations in secondary and tertiary folds. [20] The external part of the cerebro is the cerebral cortex, composed of gray material organized in layers. It is often 2 to 4 millimeters (from 0.079 to 0.157 in) thick and deeply folded to give a twisted look. [21] Under the bark is cerebral white matter. The largest part of the cerebral cortex is the neocortetics, which has six neuronal layers. The rest of the cortex is of Allocortex, which has three or four layers. [22] The bark is mapped by divisions in about fifty different functional areas known as Brodmann areas. These areas are distinctly different if viewed under a microscope. [23] The bark is divided into two main functional areas Ã ¢ â,¬ "a motor bark and a sensory bark [24]. The primary engine bark, which sends axons up to the neurons of the engines in the brain trunk and in the Spinal cord, occupies the back of the front lobe, directly in front of the somatosensory area. The primary sensory areas receive signals from sensory nerves and sections by relay nuclei in the thalamus. The primary sensory areas include the visual bark of the occipital lobe, the Bark auditory in parts of the temporal lobe and the insular bark and the somatosensory bark in the parietal lobe. The remaining parts of the bark are called areas of association. These areas receive input from the sensory areas and lower parts of the brain and are involved in complex cognitive processes of perception, thought and decision-making process. [25] The main functions of the front lobe must control attention, Abstract thinking, behavior, problem solving tasks and physical reactions and personality. [26] [27] The occipital lobe is the smallest lobe; Its main functions are visual reception, spatial visual processing, movement and color recognition. [26] [27] There is a smaller occipital lobule in the lobe known as the Cuneus. The temporal lobe controls auditory and visual memories, language and hearing and speech. [26] Cortical folds and white matter in horizontal bisection of the head The cerebro contains the ventricles in which the cerebrospinal fluid is produced and widespread. Under the Corpus Callosum is the Pellucidum septum, a membrane that separates the side ventricles. Under the side ventricles is the thalamo and the front and below this is the hypothalamus. The hypothalamus leads to the pituitary gland. On the back of the thalamo is the cerebral trunk. [28] The basal ganglia, also called basal cores, are a series of deep structures within the hemispheres involved in behavior and in the Movement regulation [29]. The largest component is striato, others are the globus pallidus, the substantial nigra and the subdalamic nucleus [29]. The striato is divided into a ventral strip and a back strip, subdivisions based on the function and connections. The ventral striato is constituted by the core accumens and the olfactory tubercle while the dorsal breath is constituted by the caudal core and putamen. Putamen and globus pallidus yes separated from the side ventricles and from the thalamus from the internal capsule, while the caudal core extends and borders the side ventricles on their own sides. [30] In the deepest part of the side furrow between the insular cortex and the strip is a thin neuronal sheet called Claustrum. [31] Below and in front of the streak are a number of structures of the basal proencefalo. These include the Basalis nucleus, broke diagonal band, substantial unnamed and the nucleus of the medial septum. These structures are important in the production of neurotransmitter, acetylcholine, which is therefore widely distributed throughout the brain. The Basal Proenzaefalo, in particular the Basalis nucleus, is considered the main colinergic power of the central nervous system in Striato and Neocortex. [32] Human brain cerebellum seen from below, showing cerebellum and an encephalic trunk main article:. Cerebelletto The cerebellum is divided into a front lobe, a rear lobe, and the flocculonodular lobe [33] The front and rear lobes are connected in the middle from the vermic. [34] Compared to the cerebral cortex, the cerebellum has a very thin external bark which is closely furrowed in numerous curved transversal slots. [34] Seen from below the two Lobi is the third lobe the floccolonodolised lobe. [35] The cerebellum rests on the back of the cranial cavity, lying under the occipital lobes, and is separated from these by the cerebellactory, a fiber sheet. [36] It is connected to the cerebral trunk from three couples of nerve traits called cerebellar peduncles. The upper pair connects to mesencephalus; The central torque connects to the marrow, and the couple connects inferior to the bridge. [34] The cerebellum consists of an inner marrow of white matter and an external bark of richly folded gray matter. [36] The [38] of the front cerebellum and posterior lobes seem to play a role in the coordination and smoothing of complex motor movements, and the flocculonodular lobe in maintaining balance [37], even if there is debate to its cognitive, behavioral functions and Motors. Main brainstem article: Brainstem trunk lies under the brain and consists of mesencephalus, bridge and marrow. It is located in the back of the skull, resting on the part of the base known as Clivus, and ends at the Magnum foramen, a large opening in the occipital bone. The cerebral trunk continues below this as the spinal cord, [39] protected by the spine. Ten of the twelve pairs of cranial nerves [A] emerge directly from the brain trunk. [39] The cerebral trunk also contains many nuclei of the cranial nerves and peripheral nerve nerves, as well as nuclei involved in the regulation of many essential processes including breathing, control of ocular movements and balance. [40] [39] Reticlare formation, a network of poorly defined formation nuclei is present inside and along the length of the cerebral trunk. [39] Many nervous ways, such as transmission information to and from the cerebral cortex to the rest of the body, pass through the brain trunk. [39] MicroanaTomy The human brain is mainly composed of neurons, glial cells, neural stem cells, and blood vessels. Types of neuron include interneurons, pyramidal cells including Betz cells, motneurons (upper and lower) Motoneurons and cerebellar purkinje cells. Betz cells are larger cells (for cellular body size) in the nervous system. [41] The adult human brain is estimated to contain 86a ± 8 billion neurons, with a number approximately equal (85a Â ± 10 billion) of non-neuronal cells. [42] From these neurons, 16 billion (19%) are found in the cerebral cortex, and 69 billion (80%) are in the cerebellum. [5] [42] Types of glial cells are astrocytes (including Bergmann Glia), oligodendrocytes, emandimal cells (including tanycytes), radial glial cells, microglia and a subtype of oligodendrocyte progenitor cells. Astrocytes are larger than glial cells. These are starry cells with many processes that radiate from their cell bodies. Some of these End processes like final peers feet for the walls of the capillaries. [43] The limits of the cortex is made up of astrocyte astrocyte foot Using partly to contain brain cells. [14] Mastocytes are white blood cells that interact in the neuroimmune system in the brain. [44] Mastocytes in the central nervous system are present in a number of structures including meningi; [44] Median neuroimmune answers in inflammatory conditions and help keep the brain barrier BloodÃ ¢, particularly in the regions of the brain in which the barrier is absent [. 44] [45] Mastocytes serve the same general functions of the body and the central nervous system, such as to perform or adjust allergic, innate and adaptive feedback, autoimmunity and inflammation. [44] Mastocytes serve as a main effect cell through which pathogens can affect biochemical signaling that occurs between the gastrointestinal tract and the central nervous system. [46] [47] About 400 Genes are proven to be the brain-specific. In all neurons, Elavl3 is expressed, and in pyramidal neurons, NRGN and REEP2 are also expressed. GAD1 Â, essential for the biosynthesis of the GABA neurotransmitter Ã ¢ is expressed in interneurons. Protein â €

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