

Query ID: test1554

Query Text: where does the brain get its energy from

Retrieved Documents:

1	doc55551	Brain. Brain tissue consumes a large amount of energy in proportion to its volume, so large brains place severe metabolic demands on animals. The need to limit body weight in order, for example, to fl
0	doc405420	Nucleus accumbens. The nucleus accumbens is one of the few regions that receive histaminergic projections from the tuberomammillary nucleus (the sole source of histamine neurons in the brain).[23]
0	doc336810	Energy. Common forms of energy include the kinetic energy of a moving object, the potential energy stored by an object's position in a force field (gravitational, electric or magnetic), the elastic en
0	doc595818	Human brain. Vision is generated by light that hits the retina of the eye. Photoreceptors in the retina transduce the sensory stimulus of light into an electrical nerve signal that is sent to the visu
0	doc1404787	Hippocampus. The input to the hippocampus (from varying cortical and subcortical structures) comes from the entorhinal cortex via the perforant path. The entorhinal cortex (EC) is strongly and recipro
0	doc495266	Functional magnetic resonance imaging. The cerebral blood flow (CBF) corresponds to the consumed glucose differently in different brain regions. Initial results show there is more inflow than consumpt
0	doc1711059	Basal ganglia. The main components of the basal ganglia as defined functionally are the striatum; both dorsal striatum (caudate nucleus and putamen) and ventral striatum (nucleus accumbens and olf
0	doc407592	Bioenergetic systems. ATP is the usable form of chemical energy for muscular activity. It is stored in most cells, particularly in muscle cells. Other forms of chemical energy, such as those available
0	doc1385364	Vein. The dural venous sinuses within the dura mater surrounding the brain receive blood from the brain and also are a point of entry of cerebrospinal fluid from arachnoid villi absorption. Blood even
0	doc361623	Cranial nerves. The terminal nerves, olfactory nerves (I) and optic nerves (II) emerge from the cerebrum or forebrain, and the remaining ten pairs arise from the brainstem, which is the lower part of
0	doc1604730	Mind uploading. Neuroscientists have stated that important functions performed by the mind, such as learning, memory, and consciousness, are due to purely physical and electrochemical processes in the
0	doc529684	Adenosine diphosphate. ADP cycling supplies the energy needed to do work in a biological system, the thermodynamic process of transferring energy from one source to another. There are two types of ene
0	doc2370749	Midbrain. The mesencephalon is considered part of the brainstem. Its substantia nigra is closely associated with motor system pathways of the basal ganglia. The human mesencephalon is archipallian in
0	doc856143	Neuroanatomy of memory. The cerebellum ("little brain") is a structure located at the rear of the brain, near the spinal cord. It looks like a miniature version of the cerebral cortex, in that it has
0	doc50128	Retina. The retina translates an optical image into neural impulses by the patterned excitation of the colour-sensitive pigments of its rods and cones, the retina's photoreceptor cells. The excitation
0	doc645089	Glycolysis. The burning sensation in muscles during hard exercise can be attributed to the release of hydrogen ions during the shift to glucose fermentation from glucose oxidation to carbon dioxide an
0	doc792024	Posterior columnmedial lemniscus pathway. The axons travel up the rest of the brainstem, and synapse at the thalamus (at the ventral posterolateral nucleus for sensation from the neck, trunk, and ext
0	doc495258	Functional magnetic resonance imaging. The primary form of fMRI uses the blood-oxygen-level dependent (BOLD) contrast,[4] discovered by Seiji Ogawa. This is a type of specialized brain and body scan u
0	doc993631	Reward system. The brain structures that compose the reward system are located primarily within the

		cortico-basal ganglia-thalamo-cortical loop;[11] the basal ganglia portion of the loop drives activi
0	doc150167	Psychology. Psychologists generally consider the organism the basis of the mind, and therefore a vitally related area of study. Psychiatrists and neuropsychologists work at the interface of mind and b
0	doc595825	Human brain. The lateral hypothalamus contains orexinergic neurons that control appetite and arousal through their projections to the ascending reticular activating system.[89][90] The hypothalamus co
0	doc438757	Hemoglobin. Some nonerythroid cells (i.e., cells other than the red blood cell line) contain hemoglobin. In the brain, these include the A9 dopaminergic neurons in the substantia nigra, astrocytes in
0	doc611423	Pons. Nuclei of the pons and brainstem
0	doc1973350	Auditory cortex. The primary auditory cortex lies in the superior temporal gyrus of the temporal lobe and extends into the lateral sulcus and the transverse temporal gyri (also called Heschl's gyri).
0	doc1023912	Neuroglia. Some glial cells function primarily as the physical support for neurons. Others regulate the internal environment of the brain, especially the fluid surrounding neurons and their synapses,
0	doc677839	Carnivorous plant. Plants use their leaves to intercept sunlight. The energy is used to reduce carbon dioxide from the air with electrons from water to make sugars (and other biomass) and a waste prod
0	doc223047	Chloroplast. Like mitochondria, chloroplasts use the potential energy stored in an H ⁺ , or hydrogen ion gradient to generate ATP energy. The two photosystems capture light energy to energize electrons
0	doc482916	Hearing. The sound information from the cochlea travels via the auditory nerve to the cochlear nucleus in the brainstem. From there, the signals are projected to the inferior colliculus in the midbrai
0	doc336845	Energy. Energy may be transformed between different forms at various efficiencies. Items that transform between these forms are called transducers. Examples of transducers include a battery, from chem
0	doc1777167	Neuroscience of sleep. The multiple hypotheses proposed to explain the function of sleep reflect the incomplete understanding of the subject. While some functions of sleep are known, others have been
0	doc1984142	Visual system. The visual cortex is the largest system in the human brain and is responsible for processing the visual image. It lies at the rear of the brain (highlighted in the image), above the cer
0	doc831340	Perception. There is also evidence that the brain in some ways operates on a slight "delay", to allow nerve impulses from distant parts of the body to be integrated into simultaneous signals.[15]
0	doc734819	Bloodbrain barrier. Cerebral edema is the accumulation of excess water in the extracellular space of the brain, which can result when hypoxia causes the bloodabrain barrier to open.
0	doc105429	Nervous system. The nervous system is the part of an animal that coordinates its actions by transmitting signals to and from different parts of its body. Nervous tissue first arose in wormlike organis
0	doc1727170	Learning theory (education). American Universities such as Harvard, Johns Hopkins, and University of Southern California began offering majors and degrees dedicated to educational neuroscience or neur
0	doc2258122	Projection fiber. The projection fibers consist of efferent and afferent fibers uniting the cortex with the lower parts of the brain and with the spinal cord. In human neuroanatomy, bundles of axons (
0	doc1513657	Cingulate cortex. The anterior cingulate is connected to the posterior cingulate at least in rabbits. Posterior cingulate gyrus is connected with retrosplenial cortex and this connection is part of th
0	doc1604745	Mind uploading. Since the function of the human mind and how it might arise from the working of the brain's neural network, are poorly understood issues, mind uploading relies on the idea of neural ne
0	doc1711072	Basal ganglia. The direct pathway, originating in the dorsal striatum inhibits the GPi and SNr, resulting in a net disinhibition or excitation of the thalamus. This pathway consist of medium spiny neu
0	doc281132	Lobes of the brain. Interior view of brain.
0	doc1192036	Cardiorespiratory fitness. In most cases, as the body is exposed to physical activity, the core temperature of the body tends to rise as heat gain becomes larger than the amount of heat lost. The fac
0	doc1979622	Biological thermodynamics. Biological thermodynamics is the quantitative study of the energy transductions that occur in or between living organisms, structures, and cells and of the nature and functi

0	doc1086199	Hypothalamicpituitarygonadal axis. The hypothalamus is located in the brain and secretes GnRH.[1] GnRH travels down the anterior portion of the pituitary via the hypophyseal portal system and binds
0	doc495289	Functional magnetic resonance imaging. Heat causes electrons to move around and distort the current in the fMRI detector, producing thermal noise. Thermal noise rises with the temperature. It also dep
0	doc611410	Pons. The pons contains nuclei that relay signals from the forebrain to the cerebellum, along with nuclei that deal primarily with sleep, respiration, swallowing, bladder control, hearing, equilibrium
0	doc204736	Fatty acid metabolism. In humans, fatty acids are formed from carbohydrates predominantly in the liver and adipose tissue, as well as in the mammary glands during lactation. The cells of the central n
0	doc1211618	Neuroscience. At the systems level, the questions addressed in systems neuroscience include how neural circuits are formed and used anatomically and physiologically to produce functions such as reflex
0	doc831363	Perception. In many ways, vision is the primary human sense. Light is taken in through each eye and focused in a way which sorts it on the retina according to direction of origin. A dense surface of p
0	doc1751469	Lateral line. After signals transduced from the hair cells are transmitted along lateral neurons, they eventually reach the brain. Visualization methods have revealed that the area where these signals
0	doc2011817	Behavioral neuroscience. Our first conclusion, then, is that a certain amount of brain-physiology must be presupposed or included in Psychology.[5]
0	doc852093	Mindbody dualism. If minds are wholly dependent on brains, and brains on biochemistry, and biochemistry (in the long run) on the meaningless flux of the atoms, I cannot understand how the thought of
0	doc361628	Cranial nerves. Cranial nerves have paths within and outside the skull. The paths within the skull are called "intracranial" and the paths outside the skull are called "extracranial". There are many h
0	doc376396	Fish anatomy. The circuits in the cerebellum are similar across all classes of vertebrates, including fish, reptiles, birds, and mammals.[51] There is also an analogous brain structure in cephalopods
0	doc934190	Neck. In addition to nerves coming from and within the human spine, the accessory nerve and vagus nerve both cranial nerves, travel down the neck.
0	doc1317273	Nerve supply to the skin. While the neurons for touch sensations ascend ipsilaterally through the posterior column-medial lemniscus pathway to the thalamus; neurons for pain and temperature ascend con
0	doc361633	Cranial nerves. The cranial nerves provide motor and sensory innervation mainly to the structures within the head and neck. The sensory innervation includes both "general" sensation such as temperatur
0	doc606629	Hypothalamus. According to D. F. Swaab, writing in a July 2008 paper, "Neurobiological research related to sexual orientation in humans is only just gathering momentum, but the evidence already shows
0	doc108229	Cerebrum. In the developing vertebrate embryo, the neural tube is subdivided into four unseparated sections which then develop further into distinct regions of the central nervous system; these are th
0	doc722739	Obesity. There are many possible pathophysiological mechanisms involved in the development and maintenance of obesity.[149] This field of research had been almost unapproached until the leptin gene wa
0	doc482915	Hearing. The inner ear consists of the cochlea, which is a spiral-shaped, fluid-filled tube. It is divided lengthwise by the organ of Corti, which is the main organ of mechanical to neural transductio

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