Reticular formation control definition

Reticular formation is a network of neurons in the brain stem that enables consciousness, sensory and motor functions, and endocrine regulation and neurotransmitters. This part of the central nervous system, distributed in three main columns from one end of the brain stem to the other, is a relay core that connects the nerves of the spinal cord to the brain using efferent and afferent neurons. Its full range of functions is not fully known. Within the orange brain stem – reticular formation of retinal formation functions includes a wide range of autonomic, sensory, motor, behavioral, cognitive, and mood responses. It works with other regions of the central nervous system to enable complex tasks such as regulating our state of consciousness, processing emotions, visual coordination, cardiovascular control and posture. About 100,000,000 pulses are received in the retina (RF) every second! You can separate the functions of a mesh formation by looking at its two systems. These are the growing reticular activation system (ARAS), which brings sensory messages from RF to the cerebral cortex and vice versa, and a dwindling reticular system (DRS) that brings messages to and from the motor neurons of the spinal cord. Both systems should be visible as two parts of a single parallel system; they work at the same time, and the creation of the stump stump sikulki modulates the number of processed messages. Both systems (ARAS and DRS) affect each other. Therefore, if you watch a really terrible horror, your muscles become tense - both your emotions and muscles react. And when the scariest moment is over, you rest. The group term for a mesh activation system or RAS is confusingly named because it not only activates but deactivates related neurons. Sensory input, engine output! ARAS is most often described as a regulator of consciousness and arousal; however, it provides information about many other processes, including our breathing rate, cough response, heart rhythm and chewing act. It has been reported that chewing maintains cognitive function by stimulating RF – lack of chewing is associated with dementia and sleep disorders. It shows how closely our muscle movements, cognitive functions, and consciousness are interrelated. A reticular formation example of activation and deactivation of feedback will make someone dozing off during a long journey. Gradually, a person's brain activity begins to decline and less information is sent from the resting cerebral cortex to the reticular system via ARAS. When this person achieves rapid eye movement (REM) sleep, his or her control of muscle tone quickly decreases to produce atony through DRS. If the head suddenly falls, signals are sent to the ionizedformations with suddenly activated muscle via drs. At the same time, ARAS reacts and nodding-off the traveler suddenly wakes up. This shows us the operation of the DRS engine to respond and activate ARAS and vice versa. Note that ARAS sends and receives sensory information, and DRS sends and receives engine information. Another example of retinal formation is the action of general anesthetics used before surgery. First, a strong analgesic is administered, which prevents pain sensations in the direction of RF. Sedative-hypnotic, such as propofol reduces the rate of firing of neurons in the cerebral cortex, hills, and reticular formation; this causes loss of consciousness and stops the processes that make up memory. Finally, muscle relaxant in the form of curare inactivates muscle spindles and reflexes regulated by the spinal cord. Reticular networks of arousal formations are pressed for the duration of the operation with anesthetic gas and drugs, and the machine takes over the autonomous function of breathing, because curare affects the skeletal muscle. The heart does not stop beating as specialized myocardial cells act as pacemakers, and the heart muscle is not a skeletal muscle. However, the heart rate, which is affected by the reticular function of the centralbrain, is affected. Count back from ten... By receiving input through afferent (leading to) nerves that enter the reticular formation of the cranic nerves, we can move our facial and neck muscles. Remember, muscle movement is the result of motor nerves that are part of DRS, as well as responses to sensory stimuli that encourage muscle movement and travel through ARAS. Just think about the horse twitching when the fly lands on his skin. Involuntary movements of smooth muscles allow for activities such as swallowing, coughing, and dilation of blood vessels and narrowing to control blood pressure. All these messages are transmitted through the mesh formation. A chain of good examples of motor mesh formation will follow a spoonful of food with eyes as it travels into the mouth, chewing and swallowing food, coughing if crumbs travel to and from the trachea, holding your breath while swallowing, and peristity in the gastrointestinal tract that pushes food through and out of your body. The voluntary automotive function is also part of the task of mesh formation, for example in our attitude and balance. Balance is not an involuntary act, but I have learned, as we see, by observing a small child, taking the first steps. Through facilitating and inhibitory pathways in the formation of retinas, messages are sent to receptors in the joints and associated muscle spindles. This muscle activity has been pulled out to the point that we are not even aware of these movements. Nevertheless, posture control depends on complex physiological interactions, a high level of sensory processing and a person's purpose, cognitive skills and cache). Practice makes master sensory functions of reticular formation, conducted by ARAS, but working with DRS, include how and when our bodies experience pain as we balance, and - most famously and studied from the roles of mesh formation - our level of consciousness. However, the full history of this small, anatomically obscure structure is still relatively unknown. By transmitting sensory information to the motor areas of the brain, RF coordinates vision, auditory, vestibular, tasteful, smelly and tactile sensory - vision, hearing, balance and movement, taste and touch respectively - so that we can perform and experience voluntary and involuntary physical and emotional reactions. The endocrine function of retinal formation does not mean that this part of the brain stem secretes or produces chemicals, but by transmitting messages it regulates the secretion of hormones and neurotransmitters. Probably the most famous example of the endocrine system of this particular function of reticular formation is our stress response system. In a stress response system, the combination of memory and the environment stimulates RF to increase firing rates towards the hypothalamus, which encourage it to secrete a corticotropin-releasing factor. This factor initiates the release of a cascade of stress hormones that make us alert, send more blood (oxygen and glucose) to muscles and vital organs, deliver less blood to non-essential organs, and therefore make the body ready to fight or run. When the danger passes, the RF agent relay modulates sensory and motor messages that calm us back. It is believed that reticular formation conveys information that controls the release and inhibition of a wide range of hormones; This theory is supported by the fact that it lies very close to important neuroendocrine secretocrine organs such as the pineal gland, pituitary gland, and hypothalamus glands. As the pineal gland is responsible for the production of melatonin (where melatonin is a proven circadian rhythm regulator that helps us fall asleep), it adds weight to the role of tricular formations in our sleep patterns. Pineal gland, melatonin, and sleep reticular formation is found in the brain stem, but extends to the spinal cord and the hill; passes through the sprat, pons, midbrains and diencephalon. RF does not completely fill the brain stem, but is loosely divided into three columns of nuclei (groups of nerve cells with their own set of functions) that work along the entire length. To simplify this fairly dispersed structure, the researchers divided the RF into median, medial and lateral columns. While these areas are associated with their own range of functions, it is their response to specific neurotransmitters that makes them so different. This is due to the fact that the reticular formation contains a large number of polysynaptic connections that connect directly or through other interneurons to the target cell. Interneurons are small versions of the mesh formation because they are relay centers. Match between two or more neurons and modulate how often and how effectively these neurons communicate. RF interneurons are polysynaptic – this means that they not only modulate messages between two neurons, but can transmit information from multiple neurons, both sensory and motor, at the same time. A single RF nerve cell regulates many functions, so you should imagine the interneuron pictured below as a combination with many other neurons. They form a huge network of related actions and responses. The interneuron median column consists of a single, central column that runs through the midday. It is divided into three groups of nerve cells (nuclei): raphe dorsal nuclei, raphe pontis nucleus and raphe magnus nucleus. You don't need to know all these names, but by grouping them together, we can get a better picture of the known features of this column. The networks of nerve cells in the middle column contain groups of interneurons called raphe nuclei. The word raphe refers simply to the vertical seam of the midline, where the structures of the left and right sides of the body merge. Therefore, the kernels in the medial column are marked raphe. The dorsal nucleus of raphe relays transmits information about pain control. The raphe pontis nucleus connects to the cerebellum and is important for combining involuntary sensory and motor information. The nucleus of raphe magnus affects our perception of pain. All raphe nuclei primarily produce, regulate, and respond to the neurotransmitter serotonin (5-HT). The medial column contains mixed medium and large nerve cells with synapses that primarily react to, produce and regulate the neurotransmitters gamma-aminobutyric acid (GABA) and glutamate. This column contains the gigantocellular nucleus, the abdominal reticular nucleus, the reticular nucleus of the mouth and the postal mesh nucleus. Again, you don't have to memorized these names. A gigantic nucleus (large cell) transmits information that controls the movement of the tongue. The abdominal reticular nucleus is probably associated with breathing and memory formation. The oral mesh testicle check probably regulates how we enter and exit the stages of rapid sleep eye movement; Mesh nucleus caudal pontine mesh is associated with the movement of the head and jaw. Probably and perhaps they are, unfortunately, the best we have now. More research into mesh formation is necessary before we can use more accurate statements. The side column hosts at least six different testicles, all of which mainly produce, regulate, and respond to the neurotransmitters norepinephrine and acetylcholine. The most commonly studied of these nuclei are the vapour-celled reticular nucleus, coeruleus and the pedunculopontine nucleus. They are associated with face control and breathing, our physiological stress responses and our feelings of arousal, reward, movement and attention accordingly. The following image shows a good indicator of the distribution of different nuclei of the mesh formation in the mon tissue. The cross-section of pons from different nuclei of the peeing formation pathways are divided by sensory and motor pathways (ARAS and DRS) and depending on whether the nerve fiber or fiber group enters or exits that part of the brain stem – in other words, whether the RF receives or transmits information. Connections bring messages to the reticular formation of the spinal cord and brain. Efferent paths bring messages from mesh formation directly or indirectly to other structures. Complex and simpler networks use mesh formation as the central basis for control or relay. When a mesh formation receives information from other regions, the routes that follow these messages are afferent paths. Messages move through synapses from the spinal cord to the RF. These numerous sensory paths send us information about pain, temperature, raw touch, fine touch, vibration and proprioception – the position and movement of our body. Afferent pathways also come from the brain and cranic nerves. They bring information to the RF corresponding to eye movement, sounds, proprioception and the presence of darkness and light, which, when communicated by RF, will synchronize our sleep and wake patterns. Quite cruel studies on cats in the late 1960s have shown that reticular formation has a big impact on how visual information accesses the brain. Other cranic nerves and brain-to-RF pathways combine sounds to stimulate, regulate hormone secretion, and adjust our level of consciousness. When the alarm clock wakes you up in the morning, your ARAS is quickly stimulated by sound, and DRS opens your eyes and helps you show this clock exactly what you think of it. What is your answer? Shipping calls send information to other structures, not receive it. In this case, effervescent reticular pathways will run out of RF to the spinal cord or other areas of the brain – crayar nerves, cerebellum, thalamus, and hypothalamus, for example. This information can be used to call a response. Responses regulated via RF are cognitive, sleep, endocrine, emotional, and motor reactions. The definition of the psychology of mesh formation function speaks of the fact that it is a regulatory center for sleep, alertness, fatigue, reward and even various personality traits. Most of the responses to our internal and external travel environments across RF. Damage to the reticular formation can be the result of brain stem injury, aging, tumors, and inflammation or infection. As The columns of specific nerve cells that pass through the brain stem are so diffuse that the effects of minor lesions are not always predictable. Greater trauma to the site of retinas formation is often fatal due to its central role in vital functions such as breathing and consciousness. Low activity in the reticular activating systems causes loss of consciousness and coma, while damage to reticular formation in degenerative diseases such as Parkinson's disease can lead to imbalance, tremor, and difficulty moving. Alzheimer's disease is associated with lower levels of neurons that respond to acetylcholine throughout the central nervous system, including those testicles with reticular formations that respond to acetylcholine – like cells in the lateral RF column. Symptoms of Parkinson's disease chronic damage to the reticular formation that dissuasive messages leaving and entering the brain stem is known to produce REM sleep problems and RF has even been found to be partially responsible for behavioral disorders such as schizophrenia. Other related psychological effects include post-traumatic stress disorder and a relatively new diagnosis of chronic fatigue syndrome. Even personality traits, such as introvertism, were associated with RF abnormalities. As so many messages pass through reticular formations, we should expect a long list of potential symptoms – from hormone regulation to motor reactions, and from emotional effects to involuntarily smooth and controlling heart muscles. After all, when the mail sorting office closes, all kinds of instructions and data is not able to pass. Bibliography of Faragun U, Ferruci M, Giorgi F S, Fornai F. (2019). Editorial: Functional anatomy of mesh formation. Boundaries in neuroanatomy. DOI: 10.3389/fnana.2019.00055 Smith S M, Fox P T, et al. (2009). Compatibility of functional architecture of the brain during activation and rest. Deliberations of the National Academy of Sciences of the United States of America. 106 13040–13045. 10.1073/pnas.0905267106 Wang, D. (2009). Formation of retinas and spinal cord injury. Spinal cord 47, 204–212 (2009). Source: