



OPTIONS CENTER EDUCATION TOPIC

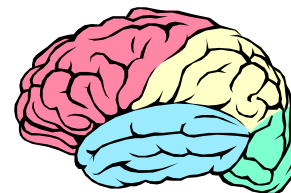


"What exactly do the exercises do to the brain -- In simple scientific terms?"

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Every start --- began with a beginning! Taken from the Enabled Learner.

Humans have what is known as a triune brain, which means our brain has three distinctive parts. The three parts are called 1) Reptilian, 2) Early Mammalian, 3) Neo-Mammalian. The reptilian part of the brain is the brain stem. The brain stem controls the survival, ritual, and instinctive functions such as circulation, respiration, reticular formation, and "fight vs. flight" responses. The Early Mammalian part of the brain controls the Limbic System which consists of the hypothalamus, thalamus, and the hippocampus. The hypothalamus controls hunger, thirst, temperature, pain, pleasure, and anger. The hypothalamus produces adrenaline. The thalamus is the sensory switchboard; it distinguishes where sensory input came from and can then turn that input after processing into an emotion. The thalamus also produces morphine/endorphins. The hippocampus processes short-term memory for long-term storage. The third part of the brain, the Neo-Mammalian, is also called the neo-cortex of the cerebrum. This is where deductive reasoning and integration take place. The neo-cortex consists of four lobes: occipital (back of the head), temporal (near temples), parietal (top of the



head), and frontal (front of the head). The occipital lobe is the visual center where sight and assimilation occur. The temporal lobe is the auditory center where hearing, balance, and smell take place. The parietal lobe controls proprioception or the sensory functions of the brain. The frontal lobe is called the motor (controlling movement), altruism, and visionary center.

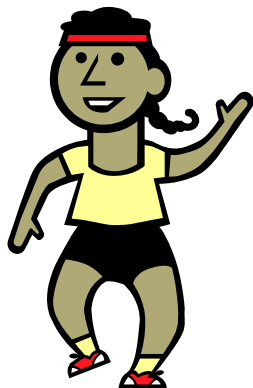
All three parts of the brain -- including the rest of the body -- contain neurons, which are small ions that are electrically charged. Neurons come together to make nerves and these nerves connect to produce nerve networks which make up the nervous system of the body. Learning occurs when information is processed by the neo-cortex and then nerves are connected to other nerves to form a network that is then connected to not only the brain, but to other sensory and motor pathways of the body. Because learning occurs through the intake of information auditorially, visually, and/or kinesthetically, each lobe in the neo-cortex must be functioning and communicating with all the other lobes in the neo-cortex.

When the body is under stress and/or fear, the person may begin to operate from the brain stem and become hyperactive and/or their attention span and concentration will decrease. The limbic system will then try to compensate for the over-activation of the brain stem in two ways. The hypothalamus can produce too much adrenaline causing the person to become jumpy and even more hyperactive. Or, the thalamus can produce too much morphine/endorphins which would cause the person to feel spaced out, oblivious to any physical pain, or feel as if they have a second wind.

Learning needs to be processed by the neo-cortex rather than the survival centers so that the nerve network is made and becomes readily available when the

person has to recall and use what was learned. If the nerve network is not used regularly, the network disintegrates, because the brain no longer keeps the nerves myelinated (covered in a fatty-sheath for protection). The more myelinated a nerve is, the better and more easily the information (learning) can be stored and then recalled when needed. When we move our bodies while learning, it causes the nerve networks in the frontal lobe to be stimulated. This stimulation then activates the myelination of nerve networks all over the brain. Movement also anchors the information. When a person learns something kinesthetically (for example - riding a bike) they can recall it faster. Language also can be recalled by this kinesthetic anchoring because it involves the movement of eyes (reading), mouth (speech), ears (listening), and hands (writing). Therefore, the more we move, the more interconnections we make with our brain.

Brain Gym® exercises are designed to integrate the three different parts of the brain (top/bottom, right/left, and front/back). The exercises done to integrate the top/bottom parts of the brain activate the neo-cortex away from the survival centers in the brain stem to help the student process his/her emotions and attitudes and also to focus more on reasoning and logical thinking instead of a "fight or flight" response. The exercises done to integrate the right/left parts of the brain stimulate myelination between the two hemispheres and help the student's communication skills.



The exercises done to integrate the front/back parts of the brain activate the visual, auditory, and kinesthetic centers of the brain, creating myelination in those centers and providing the student with better comprehension and perspective skills.

For more information on these exercises, look at the Options website under Education Center/Glossary/Brain Gym®.

BIBLIOGRAPHY:

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