



HYPOTHALAMIC NEWSLETTER

Welcome to this edition's Hypothalamic Newsletter! We will be discussing how Serotonergic Transmission, The Long Term Effects of Subliminal Messaging , and The Neurological Benefits of Dance.

Acute Stress-induced Serotonergic Transmission in Medial Prefrontal Cortex Mediating Cocaine Craving

Earlier this year, Chu and colleagues found interesting results in their study of the role of serotonergic transmission in the medial prefrontal cortex on preference for stimuli previously associated with cocaine, such as specific locations. Authors referred to this preference as cocaine conditioned place preference. In an earlier study, Chu and colleagues found that mice had increased cocaine conditioned place preference when they were exposed to acute restraint stress, but the mechanisms behind this phenomenon were left omitted.

The Study

To address this, Chu and colleagues recently completed a study on neurotransmission pathways that can explain the positive relationship between cocaine conditioned place preference and acute stress. Their study suggested that increased serotonergic transmission and subsequent increased extracellular serotonin levels in the medial prefrontal cortex can increase cocaine conditioned place preference. Before testing, when mice received citalopram, a selective serotonin reuptake inhibitor, which increases the amount of serotonin available at the synaptic cleft for binding.

June 14, 2021

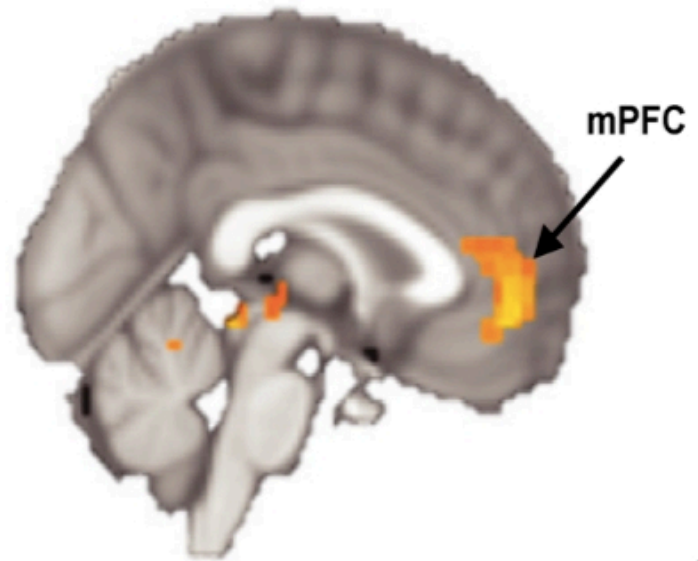
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Your brain's storage capacity is considered virtually unlimited

The Long Term Effects of Subliminal Messaging Continued

The cause may be the neocortex; also known as the neopallium, this area of the brain is responsible for cognition, sensory perception, and language, amongst other things. This part of the brain can form long-term memory over long periods and repetition. This process of the unconscious retention of information may also be correlated with hippocampus activity. The hippocampus can store information in this manner, but generally single words, or familiar information. This is known as subliminal relational encoding. Thus, it is possible that subliminal messaging is possible and can affect our decisions unconsciously, although this is a slow process and possible only

through repetition. Whether unconsciously stored information is available in the long-term memory is unknown, but further understanding of this concept could improve understanding in human behavior regarding politics, purchases, education, and general mood and decision making.



The Neurological Benefits of Dance

Dance to the brain is a “pleasure double play”, as described by neuroscientist John Krakauer. It has miraculous effects on the cognitive functioning of the brain, such as better memory retention and emotional stability. When the body moves in harmony with the music, numerous sections of the brain are activated at once due to the complex mental coordination. Not only does it require a motor and visuospatial engagement, but it is also linked to emotional and social connections in the brain. Music triggers pleasure chemicals such as dopamine and endorphins to be released in the orbitofrontal cortex and the ventral striatum.

The Neurological Benefits of Dance Continued

The cerebellum which involves coordination and timely execution of the movements is activated as well. Psychologist Daniel Levitin and his team found that music correlated to the release of antibody immunoglobulin A that strengthens the immune system. Due to the mental and physical intensity of dance, higher levels of oxygen and glucose are pumped to the brain. Along with the GPLD1 enzyme found to be released during exercise, these nourishing nutrients maintain healthy neurons and promote the synthesis of new neurons which is beneficial for learning and memory storage.

Today, the cognitive benefits of dance are widely recognized in the medical field. It has been used as a treatment for neurological disorders, including Parkinson's disease, Down syndrome, depression, schizophrenia, and dementia. Dancing is an extremely promising intervention for neurological disorders and could offer solutions in dissolving the trend of rising neurological disorders this decade.

Human brain has the capacity to generate approximately 23 watts of power when awake.



Human Brain Word Search Puzzle

Topic: - Find the Given Words hidden inside the puzzle and circle them.

Words: lobe, stem, nerve, neuron, amygdala, broca, limbic, memory, ventricle.

G	R	B	A	S	N	E	R	V	E	L
P	E	E	N	E	U	R	O	N	I	M
A	A	B	X	P	R	U	G	M	B	E
M	F	M	I	R	A	C	B	E	B	M
Y	O	U	N	I	T	I	C	I	I	O
G	R	R	S	N	C	T	A	M	T	R
D	V	E	N	T	R	I	C	L	E	Y
A	U	E	V	N	E	D	S	O	N	L
L	N	H	O	L	I	D	A	T	O	K
A	E	S	Y	M	B	O	L	B	E	E
D	B	R	O	C	A	N	E	E	R	M