

ABSTRACT

This project deals with the nervous system and its function in brain. Here connectome means the microscopic neural connectivity and its mapping between all the neurons present in the brain which further represents their graphical representation on the visual screen also which will further help us to zoom into a region to explore the cells and the functions depending on it and taking this one step ahead the memory implementation in human brain so it will be used as a memory unit except the fact that it will not effect the brain's existing memory so a person can live his/her daily life too though the basic step is to implement this idea in real life is to study and understand about functioning and working of brain and by activating maximum and achievable amount of inactive brain cells though this step could be revolutionary. Here the research is on the ancient Indian(Vedic), and some new techniques which also includes some today's technology i.e.; brainstorming, BCI(machine which helps to locate brain in a graphical manner on a visual screen), and etc. . of boosting up our some inactive brain part. The central problem on which this research is written, is the inactive brain cells between the teen age to old age. The basic design of the study is to implement our old Indian techniques and some others to achieve the brain's usage limit and to figure out the way to exceed it too which will further help us to store data digitally in brain. Nowadays brainstorming is a trend to activate the inactive brain cells which opens energy centers in our body which include some extraordinary activities that is almost impossible to do by any normal human being but researchers have found that Indian Yoga is way more powerful than the brainstorming activities in a manner to be body fit too and so far we found that this the only way to increase brain capacity and its usage though in future it might be possible due to some new high-tech machines.

INTRODUCTION

The Human connectome project offers an opportunity to understand the complete neural connectivity and all the details about it, also helps us to locate all the parts graphically which was never before possible. The Human Connectome project (HCP) is to construct a map about all the neural data it navigate the brain in a way that human can understand its functioning easily, take us through major brain path ways, compared essential circuit.

The human connectome project aims to provide an unparalleled compilation of neural data, an interface to graphically navigate this data and the opportunity to achieve never before realized conclusions about the living human brain. It defines all the neural pathways in a human brain which will help to study further and deep inside a brain. As we are studying about the behavior of the brain in different conditions and connection between them. Mapping of the human connectome offers a unique opportunity to understand the complete details of neural connectivity. The human connectome project (HCP) is a project to construct a map of the complete structural and functional neural connections in vivo within and across individuals. The HCP represents the first large scale attempt to collect and share data of a scope and details sufficient to begin the process of addressing deeply fundamental question about human connectome anatomy and variation.

EXISTING PROBLEM

Here we are defining problems which have been major obstacles or problems in the path of the developing the capacity of human brain and its functioning and the changing of its behavior due to these obstacles, as specified in introduction. But the major problem, researchers and scientists are facing is that increasing the brain capacity or the activation of inactive brain cells may cause an extremely intelligent brain like Einstein's or can cause a

mental disorder e.g.; achizophrenia and autism, it is because of the connection breakdown between both parts of the brain or the 6th sense due to breakdown of this connection both of the parts in brain start working differently and cause mental disorder.

Problems are as follows:

Inactive neurons in Teenage

Recent research on how the human brain develops and helps to explain some of the reasons like teenagers can be especially impulsive, moody and irresponsible in decision-making. The research also explains why teenagers can be especially susceptible to addiction of drugs, alcohol, smoking and especially smart phones. It is because during this age brain goes through dramatic changes which scientists and researchers beginning to understand, so it become almost impossible to navigate a teen to broad range of challenges occurring in their body in this age also brain undergo neural growth which changes of connectivity within and between various brain regions.

Poor nutrition

Eating a diet full of sugar, soda pop, fast food and processed foods and lacking in properly digested proteins and fats contributes to a breakdown of your digestive health and your brain health. Today, poor diets are one of the biggest culprits for chronic illness and disease including brain related disorders like Alzheimer's and autism. Also it has been suspected that the some relative abundance of specific nutrients can effect cognitive process and emotions too. Some of the vital mechanism which are responsible for brain health and its action and mental functioning have been revealed by dietary factors on neuronal function and synaptic plasticity, and regulator of synaptic plasticity such as brain derived neurotropic factors can function as metabolic modulators responding to peripheral signals such as food intake.

Lack of sleep

University of North Carolina study found that lack of sleep contributed to memory loss in the elderly. Scientists were not sure if it was the quantity of sleep or quality of sleep that affected memory and called for more studies. Regardless of age, if you recall the last time you had too little sleep, you'd probably agree that your memory was also affected. In modern society millions of people do not get enough sleep on their daily basis. In many cases it appears to be related to change in the activity of a brain region called the hippocampus, though the exact process responsible for producing the effects of sleep deprivation remain unclear.

Pharmaceutical drugs, over the counter drugs, alcohol and recreational drugs

Whether taking medications or taking recreational drugs, all of these substances interfere with your neurotransmitters that are critical for memory. Neurotransmitters are chemical messengers in our brain. Except the fact that drugs causes brain damage, some researchers found that some drugs are helpful in increasing or activating the inactive brain cells though it may cause some other diseases in the body. We can not ignore the fact that even though brain cells activating drugs can be very addictive which leads the body to weakness and can cause brain damage.

Depression

The chronic depression may lead to a reduction in neurons responsible for memory in the brain affecting concentration and information processing. Depression not only makes a person sad but can also cause brain damage and mental illness and the person can face difficulties remembering and concentrating once the disease is over. Upto 20 percent of depression patients never make a full recovery but in some cases there is a little hope as the brain can be forced to heal itself though it's a medical help and is a solution. This is a solution of a project conducted by professor poul videbeck.

Thyroid problems

Our thyroid glands control metabolism of our body. If our metabolism is too fast or too slow, it can impair our ability to concentrate or focus, thereby affecting our ability to remember things.

EXISTING SOLUTIONS

A study revealed that music helps to improve the cognitive functions by activating different areas of the brain. This discovery could be used in treating children with Autism.

1. Lying makes more active brain neurons
2. It has been demonstrated that when someone is lying, areas of the brain linked to decision-making are activated, which lights up on an fMRI scan for experts to see. While laboratory studies showed fMRI's

ability to detect deception with up to 90 percent accuracy, estimates of polygraphs' accuracy ranged wildly, between chance and 100 percent, depending on the study.

3. New finding about a protein that enables our brains and muscles to talk
A huge colony of receptors must be optimally positioned and functioning on our muscle cells for our brains to talk with our bodies so we can walk and breathe.
4. Therapy Seen to Restore Brain's Ability to Clear Itself of Amyloid
Researchers working in a mice reported that an experimental drug, NTRX-07, may treat Alzheimer's by targeting a potential cause — it was seen to ease brain inflammation in the animals by restoring the brain's ability to remove clumps of the beta-amyloid protein that is a hallmark of the disease. "This drug may reduce inflammation in the brain, which is linked to Alzheimer's disease," Mohamed Naguib, MD, lead author of the study presented at the recent Anesthesiology 2016 meeting in Chicago, said in a press release. "NTRX-07 uses a different mechanism than many other Alzheimer's drugs currently available, as it targets the cause of the disease, not just the symptoms."
5. Curcumin
Curcumin is found in the popular Indian spice Turmeric – part of the ginger family. It has been documented that curcuminoids have been shown to have brain boosting and cognition enhancing properties. Recently it has been shown that this substance now is linked to neurogenesis in animal models. In models of aging rats, supplementation with curcumin improved their memory and cell proliferation (birth of new neurons) in the dentate gyrate.

OUR WORK

As yogis have known for centuries and scientists can now prove, the benefits of meditation are profound. Meditation is perhaps the most crucial instrument to harness the power of thought, cultivate more peace, clarity and happiness. Learning to train the brain and focus our attention is crucial to thriving and cultivating a peak performance in any endeavor.

Long-time psychotherapist Dr. Ron Alexander, author of *Wise Mind, Open Mind*, speaks of MIND STRENGTH, or the resiliency, efficacy and emotional intelligence that arise as we begin the process of controlling the mind. Mind strength is one of the most empowering tools we can employ to impact and improve all aspects of life.

There are five major categories of brain waves, each corresponding to different activities. Meditation enables us to move from higher frequency brain waves to lower frequency, which activates different centers in the brain. Slower wavelengths = more time between thoughts = more opportunity to skillfully choose which thoughts you invest in and what actions you take.

5 Categories of Brain Waves: Why Meditation Works

- 1) Gamma State: (30 - 100Hz) This is the state of hyperactivity and active learning. Gamma state is the most opportune time to retain information. This is why educators often have audiences jumping up and down or dancing around — to increase the likelihood of permanent assimilation of information. If over stimulated, it can lead to anxiety.
- 2) Beta State: (13 - 30Hz) Where we function for most of the day, beta state is associated with the alert mind state of the prefrontal cortex. This is a state of the "working" or "thinking mind" — analytical, planning, assessing and categorizing.
- 3) Alpha State: (9 - 13Hz) Brain waves start to slow down out of thinking mind. We feel more calm, peaceful and grounded. We often find ourselves in an "alpha state" after a yoga class, a walk in the woods, a pleasurable sexual encounter or during any activity that helps relax the body and mind. We are lucid, reflective, have a slightly diffused awareness. The hemispheres of the brain are more balanced (neural integration).
- 4) Theta State: (4 - 8Hz) We are able to begin meditation. This is the point where the verbal/thinking mind transitions to the meditative/visual mind. We begin to move from the planning mind to a deeper state of awareness (often felt as drowsy), with stronger intuition, more capacity for wholeness and complicated problem solving. The theta state is associated visualization.
- 5) Delta State: (1-3 Hz) Tibetan monks that have been meditating for decades can reach this in an alert, wakened phase, but most of us reach this final state during deep, dreamless sleep.

HOW TO MEDITATE

A simple meditation to use to begin the transition from Beta or Alpha to the Theta State is to focus on the breath. The breath and mind work in tandem, so as breath begins to lengthen, brain waves begin to slow down.

To begin the meditation, sit comfortably in your chair with your shoulders relaxed and spine tall. Place your hands mindfully on your lap, close your eyes and as much as possible eliminate any stimulus that may distract you.

Watch your breath. Simply notice your breath flowing in. Flowing out. Don't try to change it in any way. Just notice.

Silently repeat the mantra: "Breathing In. Breathing Out." As your mind begins to wander, draw it back to your breath. Notice that as your breath begins to lengthen and fill your body, your mind begins to calm.

Consistency is key. Try to do this breath meditation first thing in the morning and/or at night. Be consistent with your meditation. Shorter meditations on a regular basis are more productive than long sessions every few weeks. Aim for 5 minutes a day and add 1 minutes each week.

REFERENCE

- [1] www.humanconnectomeproject.org
- [2] <https://elifesciences.org>
- [3] Book : medical physiology