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Effects of yoga and meditation on brain memory

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Abstract

This paper summarizes the effects of yoga on mental health, when we perform weight lifting our muscles get stronger and when we perform yoga particularly pranayama our brain cells develop new connections and create new changes which includes our cognitive skills. So we can think of it as weight lifting for the brain. The brain of a new born contains about hundred billion brain cells and a complex network of nerve wiring or synapses. 20 percentage of bodies total energy expenditure is consumed by brain. Yoga and breathing practices have gained this recognition in today's time because of its innumerable benefits on not only physical health but mental health too.

Keywords: Mental health, yoga, brain memory, effect of yoga, consciousness

Introduction

The phenomenon of yoga has its origin back in ancient Indian philosophy. There are different schools of yoga like Iyengar, Vinyasa, Sivananda, etc. Each school has its own distinct emphasis in regard physical poses, pranayama, meditation that helps to inculcate awareness and ultimately deeper sense of consciousness. Despite a growing body of clinical research studies and some systematic reviews on the effects of yoga on mental health there is still a lack of solid evidence regarding its clinical relevance. The variances may be due to difference in age, gender and health status of every individual. In yoga the emphasis on breathing practices and meditation can help calm and center the mind. It's not surprising that yoga also brings mental benefits such as reduced anxiety and depression and a sharper brain. According to a recent report of WHO approximately 7.5% of Indian is suffering from mental illness. Today mental health is not taken up seriously and even do not consider it as a serious condition in India. According to a report by WHO, Depression would be 2nd biggest problem in the world after 2020. Many researches have proved that mental health and depression are the main cause of heart problems.

Research Methodology

This paper is prepared using the multidimensional studies method to study the prevailing literature and analyze the same for further research perspectives.

Anatomy of Brain

During yoga, our brain is at rest, the meditation and breathing helps to de-stress, lowers body cortisol & adrenaline level and it takes place in two major areas of the brain:

- Frontal Lobe: The most complex portion of the brain as it makes possible the thinking, planning and reasoning. This part of the brain during yoga remains at rest.
- Parietal Lobe: It controls the senses, the sight, the sound & everything around us so when we are doing any activity be it working, driving or observing things, so much is going on in this part, so that's when yoga comes into play.

The ECG shows 4 types of patterns called "Brain waves". These waves are rhythmic in nature, These are.

- 1) Beta waves
- 2) Alpha waves
- 3) Theta waves
- 4) Delta waves

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Synchronization of Brain Waves

During meditation & deep relaxation, the left & right brain wave patterns happens together. Scientists now believe that synchronization makes—

1. Much more brain power available
2. Learning large amount of information very quick
3. High creativity
4. Self-control over all emotions.

Functions of brain

Our brain is made up of two tissues – white matter (60%) and gray matter (40%). Both play a major role in healthy functioning of the brain.

Gray matter: It consists of neurons; because blood flows through it therefore in reality it is pink. On death it becomes gray. Gray matter is responsible for learning, memory etc. and also proper functioning of our senses.

White matter: The connections that extend from your brain cells to allow brain to send and receive signals. It coordinates your thoughts.

Research has shown that yoga increases gray matter density in the brain which in turn tells us that more cells are present there and therefore better performance. In yoga we regularly practice asanas, breathe and meditate rightly, the gray matter increases overtime and activate hippocampus and prefrontal cortex of our brain. Some researchers have shown that long term meditations had more gyrification of their brain's cortex which in turn is responsible for language, memory, and reasoning.

5 Asanas to improve concentration and memory-

- **Padmasana:** It calms your mind, helps stabilizing the body and once the body is stabilized, the mind becomes relaxed.
- **Bhramari:** Relieve negative emotions like anger, frustration & anxiety and increase concentration.
- **Pashchimottanasana:** Forward bend enhances blood supply and calms mind and improve memory.
- **Padahantana:** Standing forward bend pose for brain power pose. It energizes nervous system and increases flow of blood to improve concentration and memory power.
- **Halasana:** Good for nervous system as it recalibrates your inner compass, boost mood, relieves tension and calms mind.

How to energize and activate the brain

The body is a very complicated subtle electronic equipment. When the proper energy wiring connection is made, it produces the right results, when the connection is wrong it does not produce the expected results. The right ear lobe corresponds to the left brain and while the left ear lobe corresponds to the right brain. When the right ear lobe is gently squeezed with the left thumb and left index finger with the thumb outside, it produces the necessary energy connection, which causes the left brain and pituitary gland to become energized and activated.

Benefits of super brain yoga

- It energizes and activates the brain.
- It increases the inner peace.
- It reduces psychological stress and gives greater psychological stability.
- Greater intelligence and creativity.

- Regulates sex drive.
- Spiritual growth.
- Proper functioning of brain.
- Partial cleaning and energizing effect on chakras and auras.

With the recent pandemic scenario an instrument called pulse oximeter was widely used. This small device gives us the information about how well our blood cells are saturated with the oxygen. Our brains utilize about 3 times more oxygen than any other muscle in the body, the level of circulating oxygen in our body specially our brain is a very critical aspect of our overall body function. Our brain utilizes about 20% of supply of blood oxygen. An unimpeded blood flow towards the brain not only brings oxygen but also other nutrients and carry waste products from the brain and when this blood flow is hindered then problems related to brain happens like brain fog, anxiety, depression, panic disorder, OCD.

Analysis

When Yoga is being performed the human brain releases certain chemicals that helps to relax and lower the stress and anxiety levels like dopamine, oxytocin, serotonin, endorphins and gamma-amino butyric (GABA). Yoga is a series of poses that involves stretching, the benefits not only reach the physical aspects but a mental aspect too as it produces certain structural changes in your brain. It affects cognition as well as maintains processing capacity of emotions, stress and anxiety.

Conclusions

It was conducted that Pranayama, meditation along with posture based asana increases the overall brain wave activity. Yoga practice may be an effective adjunctive treatment for a clinical and healthy aging population. Yoga gives positive effects on brainwave activity and stimulate alpha, beta, theta brainwaves. Asana, Pranayama and meditation elicit various and specific effects on cognitive and neurological functions and also causes certain parts of brain to increase and decrease in size and process emotions, stress and anxiety. All of which helps to live a happier and healthy life.

Meditation, an intrinsic part of a yoga routine is a deep relaxing technique. Many studies have shown that a stage of deep meditation massively improves blood flow in the prefrontal cortex region of the brain. More over verbal fluency and logical memory also showed intense improvement.

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