World Journal of Pharmaceutical and Life Sciences
WJPLS
www.wjpls.org
SJIF Impact Factor: 7.409

# EFFECTS OF NEUROPLASTICITY BASED BRAIN GYM EXERCISES ON CONCENTRATION AMONG COLLEGE STUDENTS

**Manjula S.* and Dr. P. Senthil Selvam**

[1]Senior Clinical Tutor, School of Health Sciences, Liverpool Hope University, UK.
[2]HOD, SOPT, Vistas, Chennai, India.

***Corresponding Author: Manjula S.**
Senior Clinical Tutor, School of Health Sciences, Liverpool Hope University, UK.
**Email id:** manju.uk2023@gmail.com

**Article Received on 24//05/2025** **Article Revised on 13/06/2025** **Article Accepted on 04/07/2025**

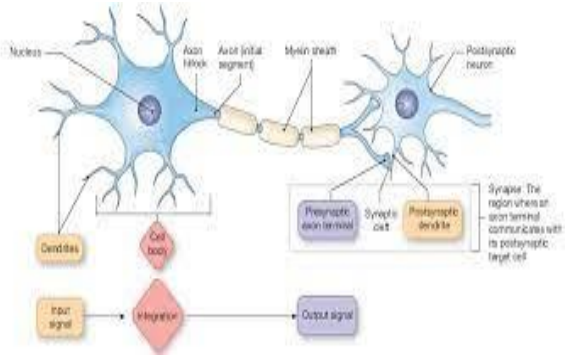
## ABSTRACT

**Introduction:** Brain Gym exercises offer a non-invasive and effective way to enhance concentration by improving oxygen supply to the brain, promoting neuroplasticity, and reducing mental fatigue. Brain Gym exercises can significantly improve concentration. Studies show that these exercises enhance cognitive function, including memory, focus, and attention, leading to increased alertness and reduced senility or dementia. Brain Gym movements stimulate the brain, improving oxygen supply, reducing tension, and promoting better learning and focus. **Aim and Objective of the Study:** The aim of the study was to assess the effects of neuroplasticity based brain Gym exercises on concentration among college students. **Need of The Study:** Brain gym, also known as educational kinesiology, is a system of physical exercises designed to improve cognitive and physical performance, particularly in learning and concentration. The core idea is that movement and learning are interconnected, and specific exercises can stimulate brain activity and improve its function. **Method:** 30 Subjects from both the genders, in the age group of 18-22 years, who were noticed as suffering from concentration deficit, were separated into two groups, namely A & B. 15 subjects (A-experimental group) were given neuroplasticity based brain gym exercises and the remaining 15 subjects (B-control group) were given awareness program of brain gym exercises for a period of one hour per day for 5 days per week for 8 weeks. The outcome measure used was concentration Questionnaire. **Result:** The data collected were statistically analysed by paired t-test. From the result of the statistics, it was found out that the concentration level of the subjects was increased. **Conclusion:** The study concluded that brain gym exercise was more effective in improving concentration among college students.

**KEYWORDS:** Brain gym exercise, concentration, cognition, concentration questionnaire.

## • INTRODUCTION

Neuroplasticity refers to the brain's ability to modify its structure, function, and connections in response to stimuli. It is the brain's ability to change and adapt due to experience. It is an umbrella term referring to the brain's ability to change, reorganize or grow neural networks. Understanding neuroplasticity is vital for optimizing our cognitive abilities, including concentration. By actively engaging in activities that promote brain plasticity and minimizing factors that hinder it, we can potentially enhance our ability to focus, learn, and perform at our best.




## AIM AND OBJECTIVE OF THE STUDY

The aim of the study was to assess the effects of neuroplasticity based brain Gym exercises on concentration among college students.

## RESEARCH DESIGN AND METHODOLOGY

A study was conducted for a period of 8 weeks, where

30 samples were recruited for the study based on the inclusion and exclusion criteria.

**Inclusion criteria**
- Age ranging between 18-22yrs
- Both the genders can participate
- Under and Post graduate college students are included
- Willing to participate

**Exclusion criteria**
- Those who are having difficulty to comprehend language
- Those who are having auditory or visual disorder
- Previous history of depression or psychosis
- Those who have undergone eye surgeries
- Smart phone addictors

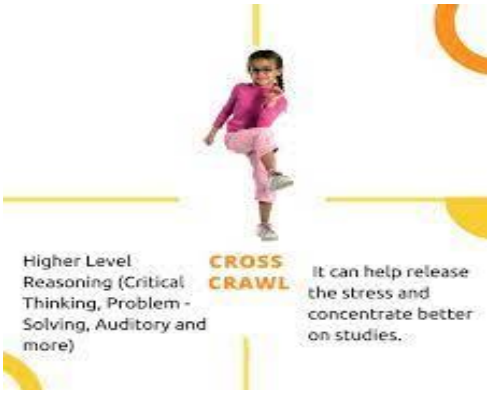
**OUTCOME MEASURES:** Concentration

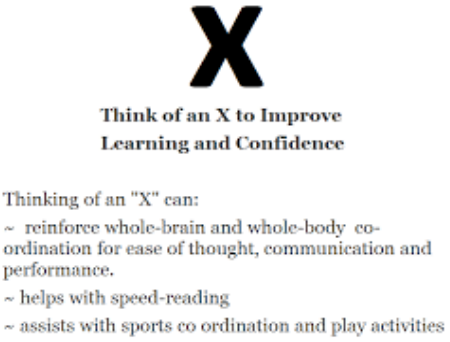
**MATERIAL USED**
Concentration Questionnaire

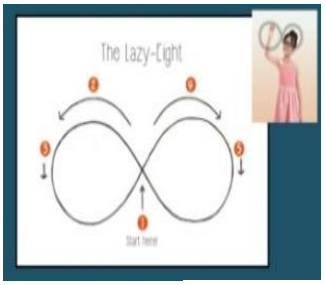
**PROCEDURE**
It was an experimental study, where 30 samples were recruited based on the inclusion and exclusion criteria. Written informed consent was obtained from the samples. The total number of samples was divided into two groups, Group A and B namely experimental and control group. The experimental group was given neuroplasticity based brain gym exercises for a period of 8 weeks. Control group was given the awareness program of brain gym exercises. Outcome measures were applied. Pre and post test scores was analysed based on the statistical analysis. The reliability and validity of the outcome measures were verified. Totally Neuroplasticity based brain gym exercises was given to the samples for a duration of 50 min/day under the supervision of therapist, for 5 days per week for 8 weeks.

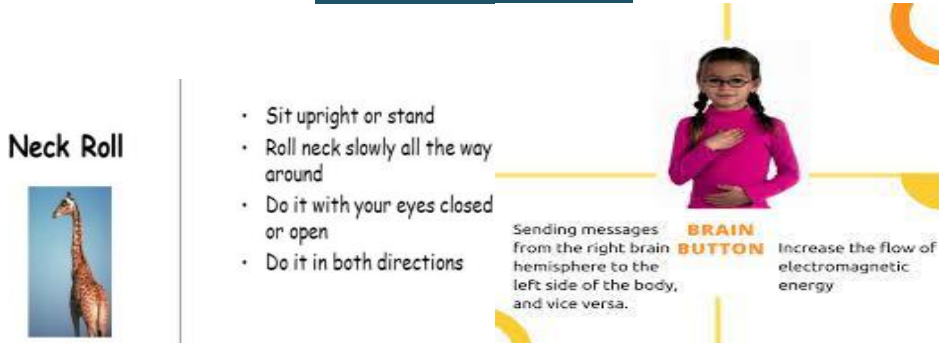
**PROTOCOL**
**Group A-Experimental Group**
Neuroplasticity based Brain-fit mind exercises was given to the Group A (Experimental group) samples which included the following:

**Brain gym exercises includes**
- Cross crawl
- Think of X
- Lazy Eight
- Neck rolls
- Brain button



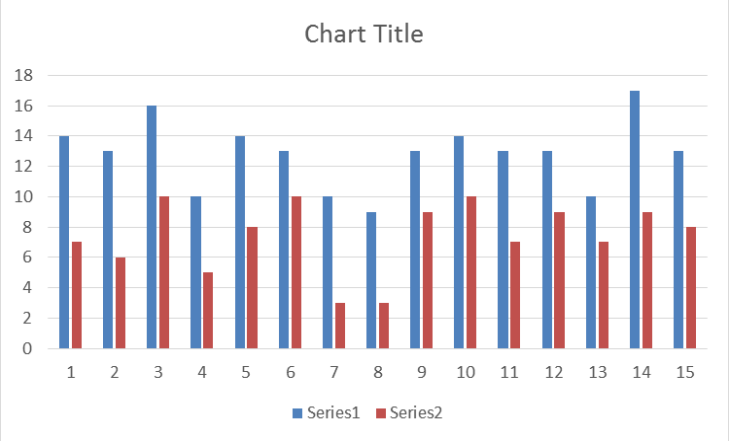
All the exercises were performed one session/ day , each for 10 min making a total of 50min and with an initial warm up for 5 min and intermediate rest of 5 min making a total of one hour per day for 5 days per week.

**Group B-Control Group** Control group(Group B) was given the awareness program of brain gym exercises. Outcome measures were applied. Pre and post test scores was analyzed.

**DATA ANALYSIS:** Data analysis was done. Pre test and post test values of the control group and experimental group were statistically analysed by means of t-test. The post test values of experimental and control group were analysed. The significance levels used for this study was P<0.05.

**Table 1: Experimental Group-Group A-Brain Gym Exercises.**

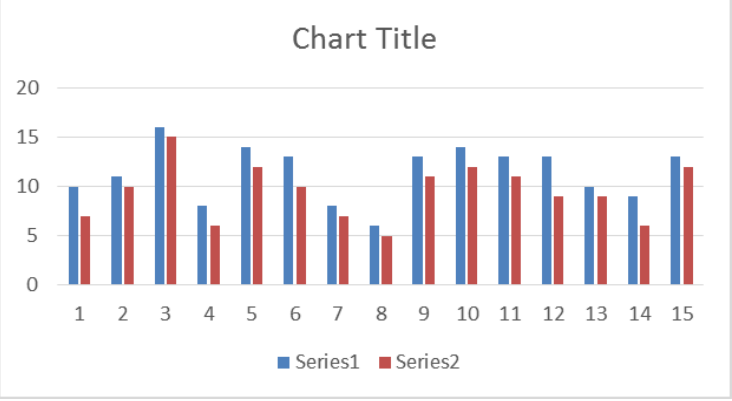
| | *Variable 1* | *Variable 2* |
|---|---|---|
| Mean | 12.8 | 7.4 |
| Variance | 5.028571429 | 5.4 |
| Observations | 15 | 15 |
| Pearson Correlation | 0.770351776 | |
| Hypothesized Mean Difference | 0 | |
| df | 14 | |
| t Stat | 13.5 | |



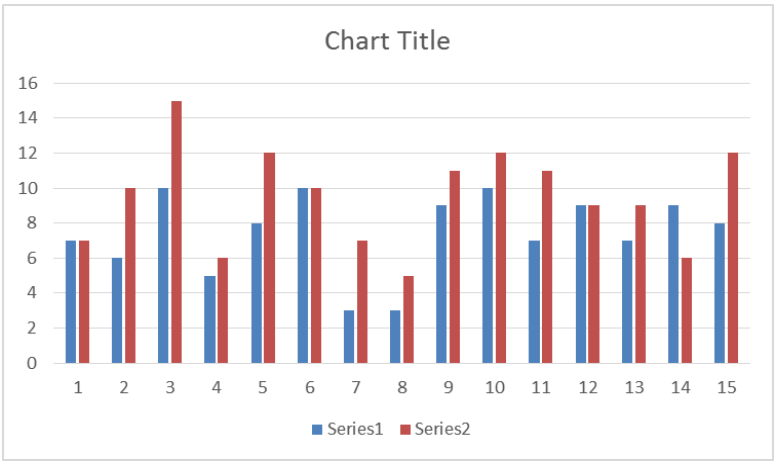

**Graph 1: Experimental Group-Group A-Brain Gym Exercises.**

**Group B-Awareness Program of Brain gym**

| | *Variable 1* | *Variable 2* |
|---|---|---|
| Mean | 11.4 | 9.466666667 |
| Variance | 7.828571429 | 7.980952381 |
| Observations | 15 | 15 |
| Pearson Correlation | 0.941610005 | |
| Hypothesized Mean Difference | 0 | |
| df | 14 | |
| t Stat | 7.790424998 | |




**Graph 2: Group B-Awareness Program of Brain gym.**




**Graph 3: Comparison of Post test of Experimental and Control Group.**

## RESULT

From the pre and post test scores, it was evident that Neuroplasticity based brain gym exercises was more effective on concentration among college students.

## DISCUSSION

The statistical analysis was done which revealed that the mean post test score of concentration was 7.34, which was lower than the mean pre-test score 12.93 and it gave an inference that the concentration of the group A (experimental group) had increased. In case of control group, the mean post test score of concentration was 8.34 which was lower than the mean pre-test score 12.03 and it gave an inference that the concentration of the group B (control group) has also increased. However, when comparing both the experimental and control group, the post test scores of concentration of the experimental group has been found to be much more significant than the control group at P> 0.001.

## CONCLUSION

This study concluded that Neuroplasticity based brain gym exercises was more effective on concentration among college students.

## REFERENCES

1. Ge S., Yang C., Hsu K., Ming G., Song H. A critical period for enhanced synaptic plasticity in newly generated neurons of the adult brain. *Neuron,* 2007; 54: 559–566. 10.1016/j.neuron.2007.05.002
2. Goh J. O., Park D. C. Neuroplasticity and cognitive aging: the scaffolding theory of aging and cognition. *Restor. Neurol. Neurosci,* 2009; 27: 391–403. 10.3233/RNN-2009-0493
3. Houillon A., Lorenz R. C., Boehmer W., Rapp M. A., Heinz A., Gallinat J., et al. The effect of novelty on reinforcement learning. *Prog. Brain Res.,* 2013; 202: 415–439. 10.1016/B978-0-444-62604-2.00021-6
4. Lojovich J. M. The relationship between aerobic exercise and cognition: is movement medicinal? *J. Head Trauma Rehabil,* 2010; 25: 184–192. 10.1097/HTR.0b013e3181dc78cd
5. Mahncke H., Connor B., Appelman J., Ahsanuddin O., Hardy J., Joyce N., et al. Memory enhancement in healthy older adults using a brain plasticity-based training program: a randomized, controlled study. *Proc. Natl. Acad. Sci. U.S.A.,* 2006b; 103: 12523–12528. 10.1073/pnas.0605194103
6. Murphy T., Dias G. P., Thuret S. Effects of diet on brain plasticity in animal and human studies: mind the gap. *Neural Plast.,* 2014; 2014: 563160. 10.1155/2014/563160