



# How Practicing Meditation Strengthens a Teenager's Ability to Focus in Stressful Situations



Isha Nadkarni, Sriram Jayabal  
Palo Alto High School

## INTRODUCTION

Increased mental health visits in teens (12–17) related to an increase in mental stress

- School, relationship difficulties, peer pressure, etc.

Key Words:

- neuroplasticity: ability to form/ strengthen synaptic connections in the brain
- meditation: act of focusing on awareness of oneself

Buildup of stress + emotion → neurons / dendrites shrink → teens have defective hippocampus → damaged neuroplasticity

## Possible Solutions

- Meditation is efficient / easy method to eliminate toxic stress in the brain
- Meditation practice could potentially strengthen teenagers' response to stress
  - Possible method to decrease teenage anxiety + depression

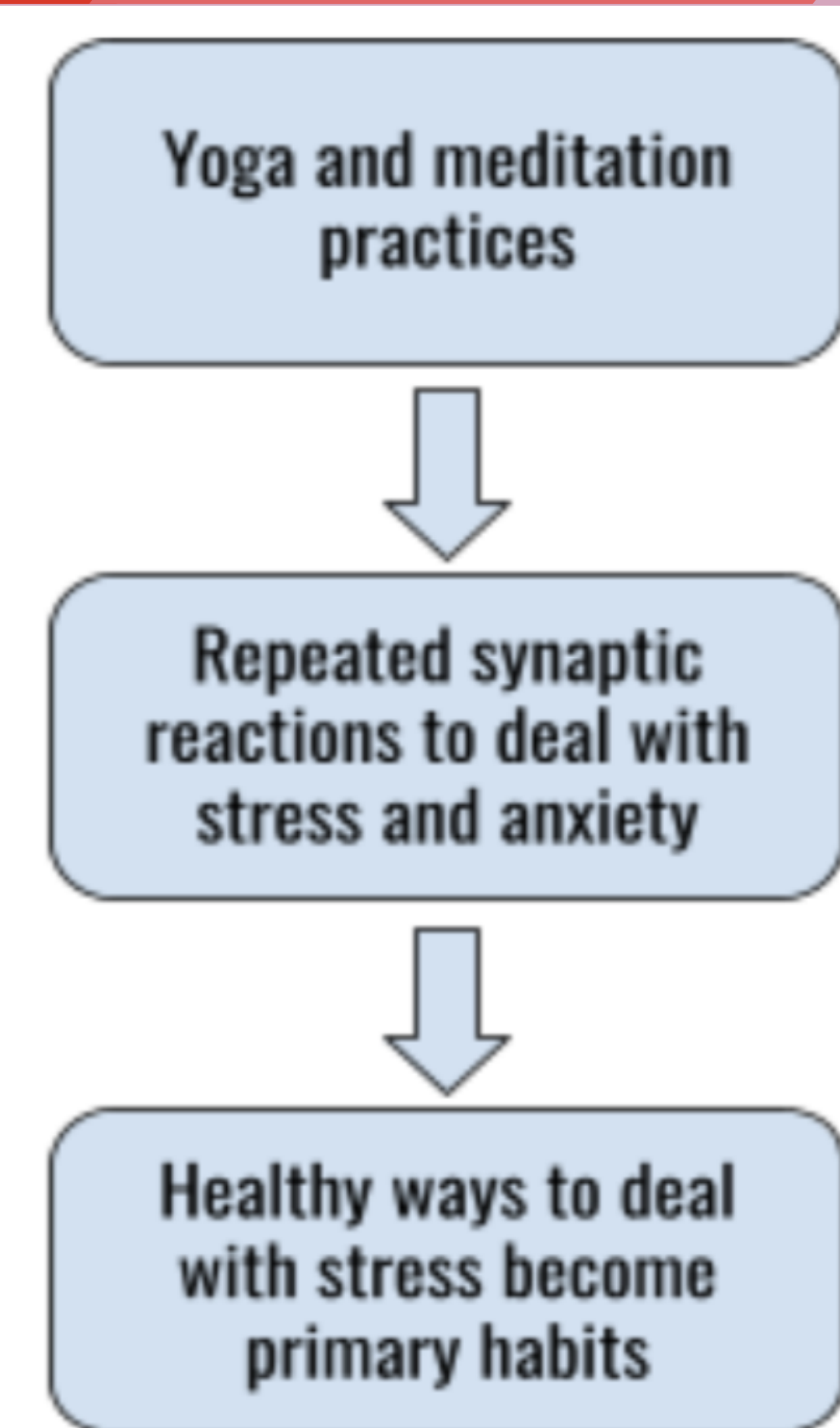
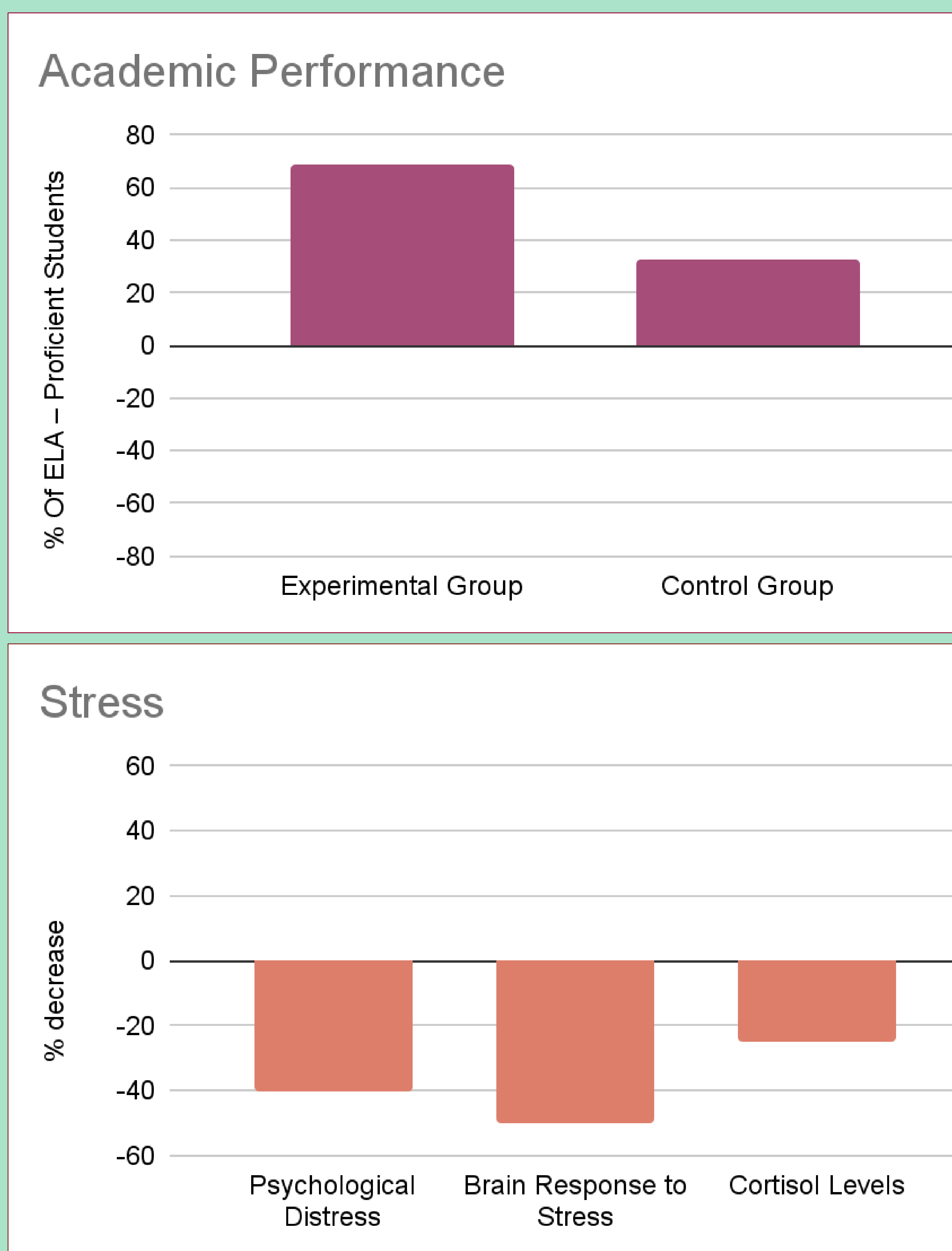
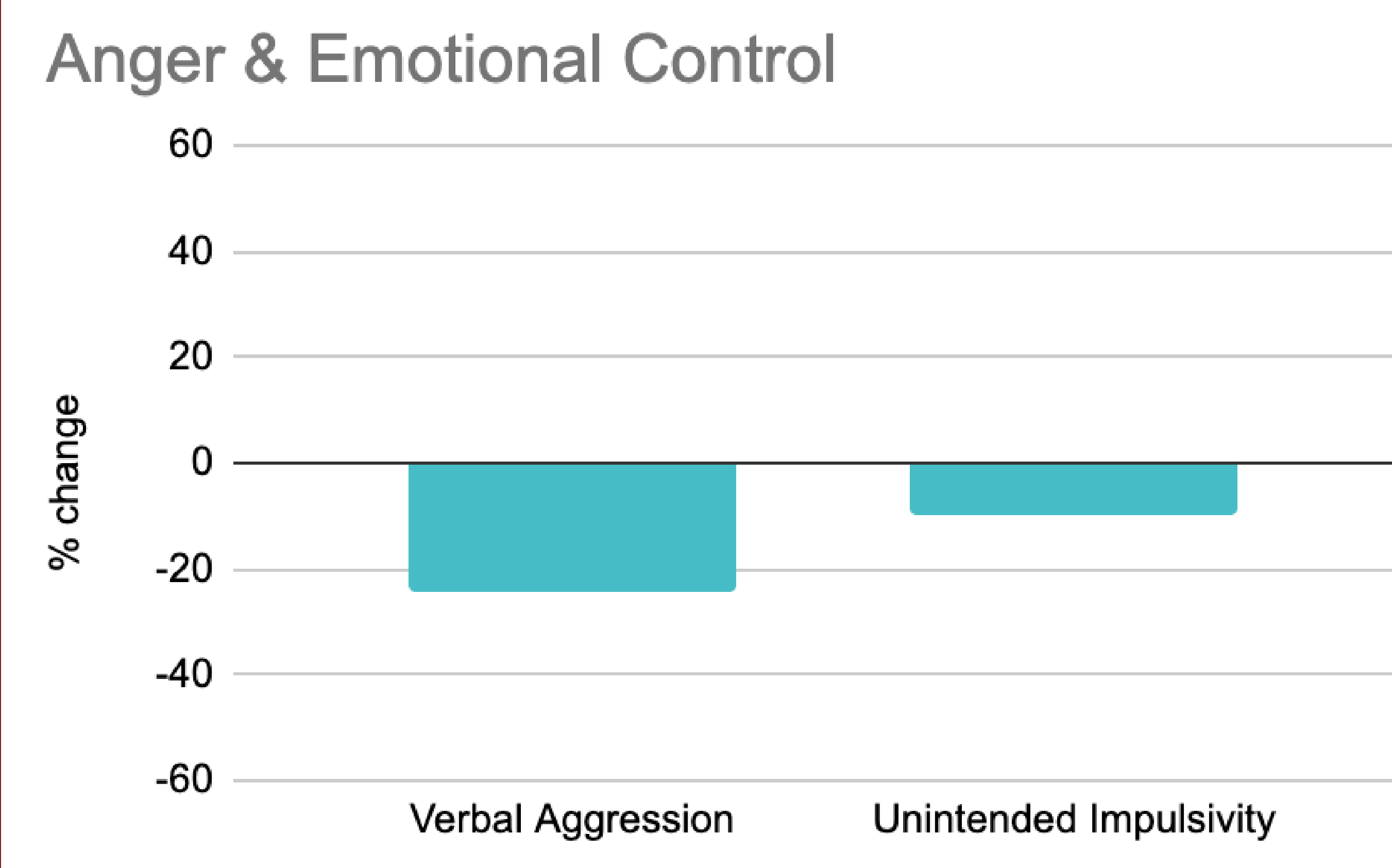


Figure 1: Simplified chain reaction of meditation effects on stress.

## DATA AND FINDINGS

Due to a lack of participation in this study, I was unable to form a conclusion on my research question. As an alternative to producing my own data, I compiled data from past studies related to the effects of meditation on anger, stress, and academic performance.



## IMPLICATIONS AND NEXT STEPS

Since this study was modified to collect existing data rather than conducting a study, there remains a lack of evidence and exploration on the effects of meditation on teenage stress and academic performance levels as a whole.

As a next step, I would revive the original meditation study with actual teenage participants. This will allow me to obtain more data regarding the effect of meditation on focus levels.

Additionally, I would also like to further explore the reasons why people, particularly teenagers, have an aversion towards participating in studies – even if they would potentially benefit.

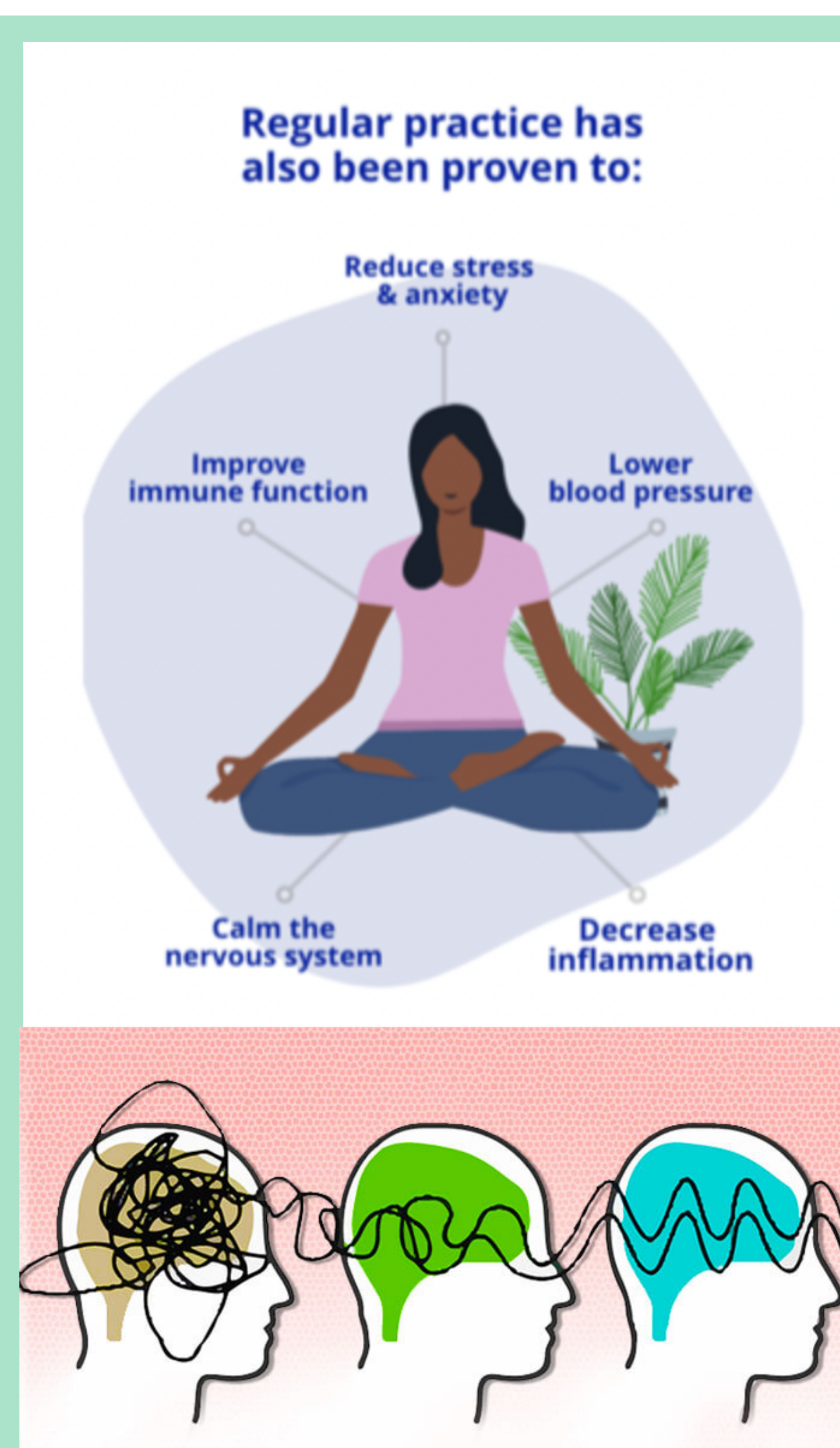
## RESEARCH METHODOLOGIES

What is the research about?

- Meditation's impacts on emotional control and how it applies to focus levels

How will the data be collected?

- Originally, I had planned on conducting a study with student participants at Palo Alto High School. The study would collect personal observations of effects of meditation in students' lives
- Unfortunately, due to time constraints as well as a lack of participation, I had to resort to a content analysis method, in which I would analyze existing data about meditation's effects on anger, stress, and academics.



## CONCLUSIONS AND ANALYSIS

Based on the evidence provided in the graph, it is clear that meditation indeed affects emotional control in the brain, which as seen in the graphs, also improves academic performance.

This supports the links made in my preliminary research in this study, which supports the conclusion that the practice of meditation can improve stress levels as well as academic performance in adolescents.

Overall, it is clear that meditation improves the ability to focus and overcome stress due to the link between the emotional response system and the ability to focus.

## ACKNOWLEDGEMENTS / REFERENCES

### Acknowledgements

Thank you to my teacher, Ms McDaniel and my mentor, Sriram Jayabal for making this project possible.

### Works Cited:

- Boynton, E. (n.d.). What happens in the brain during meditation? Right as Rain by UW Medicine. <https://rightasrain.uwmedicine.org/mind/well-being/science-behind-meditation>
- Davidson, R. J., & McEwen, B. S. (n.d.). Social influences on neuroplasticity. Stress and interventions to promote well-being. Nature Neuroscience. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3491815/>
- Madankumar, K. (2020, July 24). Learning - create & strengthen neural pathways. LinkedIn. Retrieved February 23, 2022, from <https://www.linkedin.com/pulse/learning-create-strengthen-neural-pathways-kamakshi-madankumar>
- Transcendental Meditation Research. David Lynch Foundation. (n.d.). Retrieved April 25, 2022, from <https://www.davidlynchfoundation.org/research.html>
- Valosek, L., Nidich, S., Grant, J., Peterson, M., & Nidich, R. (2021, June 15). Effect of meditation on psychological stress and academic achievement in high school students: A randomized controlled study. Latest TOC RSS. Retrieved April 25, 2022, from <https://www.ingentaconnect.com/content/prin/ed/2021/00000141/00000004/art00005>