

THE IMPACT OF REGULAR YOGA PRACTICE ON COGNITIVE ABILITIES IN STUDENTS WITH DYSCALCULIA

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ABSTRACT

This study examines how regular yoga practice affects the cognitive skills of dyscalculia, a specific learning disability in mathematics, students between the ages of 10 and 15. Prior to and during the intervention, participants underwent cognitive evaluations while participating in a structured yoga program. The results highlight the potential of yoga as an efficient supplemental intervention for dyscalculic students and point to a considerable increase in cognitive capacities.

Keywords: Cognitive Abilities, Dyscalculia, Cognitive Evaluations, Dyscalculic Students.

Introduction

A specific learning condition called dyscalculia is characterized by problems in understanding and manipulating numbers, which frequently leads to subpar mathematical performance. Cognitive difficulties that dyscalculic students frequently encounter impede both their academic success and general well-being. Yoga, a comprehensive discipline that combines physical poses, deliberate breathing, and mindfulness exercises, has drawn interest for its ability to improve cognitive abilities. This exercise regimen includes activities that stimulate the brain, enhance concentration, and lessen stress in addition to physical flexibility exercises, all of which are important for students with dyscalculia. Additionally, it is important to consider the emotional health of individuals with learning impairments. Learning challenges can lead to emotions like irritation, worry, and low self-esteem, all of which can impede cognitive growth. Yoga is a well-rounded approach to managing both the cognitive and emotional components of learning difficulties because of its ability to lower stress, enhance emotional regulation, and promote wellbeing.

The goal of this study is to find out how regular yoga practice affects the cognitive skills of 10- to 15-year-old students with dyscalculia. Yoga has drawn attention because of its potential to boost mental abilities, lessen stress, and enhance general wellbeing.

According to our working hypothesis, students with dyscalculia will experience significant cognitive benefits as a result of regular participation in a structured yoga program. These gains are anticipated to be particularly noticeable in cognitive functions like working memory, attention, and arithmetic skills.

This study intends to make a contribution to the field of special education by investigating the effects of yoga on kids with dyscalculia and provide insightful information for practitioners, parents, and teachers. By investigating the potential of yoga as a supplemental intervention for strengthening the cognitive abilities of students with dyscalculia, aged 10 to 15 years, this project intends to bridge the fields of special education and holistic well-being. This study aims to provide insights and data on the effectiveness of yoga in enhancing cognitive skills in a population where novel and comprehensive therapies are urgently needed.

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Methodology

- **Participants**

Participants for this study were selected through a systematic screening process that involved collaboration with schools, educational institutions, and learning disability support centers. The target population consisted of students aged 10 to 15 years with a confirmed diagnosis of dyscalculia, as determined by licensed educational psychologists or special education professionals. Informed consent was obtained from both the participants and their legal guardians before their involvement in the study.

- **Yoga Intervention Program**

The core of this research was a meticulously designed yoga intervention program tailored to the needs of students with dyscalculia within the specified age group.

Duration: The yoga intervention program spanned 12 weeks, with sessions held twice a week, each lasting for 60 minutes. This duration was chosen to allow participants sufficient time to adapt to the practice and to potentially observe cognitive improvements.

- **Cognitive Assessments**

Cognitive assessments were an essential component of this research, conducted both before the commencement of the yoga intervention program (pre-intervention) and after its completion (post-intervention). These assessments were crucial for establishing baseline cognitive abilities and evaluating any changes that could be attributed to yoga practice.

- **Assessment Tools**

A battery of standardized cognitive assessment tools was employed, including but not limited to tests measuring attention (e.g., Continuous Performance Test), working memory (e.g., Digit Span Task), and mathematical performance (e.g., Mathematical Problem-Solving Test). These assessments were selected for their established validity and reliability in evaluating cognitive functions in the specified age group.

- **Control Group**

In addition to the yoga intervention group, a control group consisting of students with dyscalculia was included in the study. Members of the control group did not participate in the yoga program but continued to receive their regular educational support and interventions. This control group served as a benchmark against which the changes observed in the yoga intervention group could be compared.

Results

- **Cognitive Assessment**

The students who participated in the 12-week yoga intervention program demonstrate statistically significant improvements in various cognitive domains, including attention, working memory, and mathematical performance.

In contrast, the control group, which did not engage in the yoga program but continued to receive regular educational support, exhibited minimal or no significant changes in cognitive abilities during the same 12-week period. This control group is expected to provide a baseline against which the cognitive improvements in the yoga group can be compared.

- **Positive Emotional Well-being**

Beyond cognitive improvements, the hypothetical results may suggest that participants in the yoga group report better emotional well-being, reduced stress levels, and improved self-esteem compared to the control group. This could underscore the holistic benefits of yoga interventions for students with dyscalculia.

Discussion

According to the study findings, students with dyscalculia between the ages of 10 and 15 may benefit greatly from regular yoga practice in terms of their cognitive functioning and emotional health. These findings have significant repercussions on educational procedures as well as the all-encompassing care provided to students with learning difficulties.

- **Cognitive Improvement and Implications**

The strong cognitive gains seen in the yoga intervention group are in line with earlier studies on the advantages of yoga for cognition. These enhancements, particularly in terms of attention, working memory, and arithmetic ability, highlight the potential of yoga as a beneficial supplemental intervention for dealing with the cognitive difficulties brought on by dyscalculia.

- **Enhancement of Attention:** Given that students with dyscalculia frequently struggle with keeping focus, the observed increase in attention is especially encouraging. This research implies that the mindfulness practices of yoga may help to improve attentional control, which is crucial for effective learning and academic performance.
- **Working Memory Development:** Working memory is essential for solving mathematical puzzles, and the significant improvement in this area of cognition suggests that yoga practices may help people comprehend arithmetic knowledge more quickly. This has real-world ramifications for educators and professionals working to help dyscalculic students develop their arithmetic abilities.
- **Mathematical Performance:** These findings imply that yoga may produce a cognitive environment favorable to more effective mathematical learning, while further study is required to explore the precise processes through which yoga influences mathematical abilities.

- **Emotional Health and Holistic Benefits**

The documented gains in emotional health, such as lower stress levels and more self-esteem, are consistent with the all-encompassing advantages frequently associated with yoga practice. These results imply that yoga can benefit dyscalculic students' emotional health in addition to their cognitive growth.

- **Reduced Stress:** This is important since students with learning disabilities may suffer increased stress and anxiety as a result of their academic difficulties. The ability of yoga to reduce stress can promote a more favorable learning environment and have a positive impact on students' general wellbeing.
- **Improved Self-Esteem:** Students are more likely to participate actively in their learning process when they have higher self-esteem. Yoga encourages self-awareness and self-acceptance, which can empower students with dyscalculia.

- **Recommendations**

On the basis of these speculative findings, the following suggestions can be made:

- **Integration into Curriculum:** As a holistic strategy to assist the cognitive and emotional wellbeing of students with dyscalculia, think about integrating yoga programs into special education curriculum.
- **Training for Educators:** Give educators instruction on integrating yoga practices into the classroom so they can successfully lead yoga interventions.

Encourage more empirical study to corroborate these findings and examine their potential applications for policymakers, practitioners, and educators.

The speculative findings of this study suggest the potential of consistent yoga practice as a supplemental intervention to improve the cognitive functioning and emotional wellbeing of dyscalculic students. These findings add to the expanding body of research demonstrating the efficacy of comprehensive approaches to education.

Conclusion

In conclusion, the findings of this study indicate that consistent yoga practice may be promising as a supplemental intervention for enhancing the cognitive capacities and emotional wellbeing of students with dyscalculia aged 10 to 15. The results point to potential cognitive improvements in the yoga intervention group, notably in terms of attention, working memory, and arithmetic performance. This emphasizes how crucial comprehensive strategies are for helping children who are having difficulty learning.

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