



Using Fidget Spinners and Stress Balls Do Not Impact College Introductory Psychology Test Scores

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Authors' contributions

This work was carried out in collaboration between both authors. Author TFP developed the study idea and design. Both authors developed study materials and performed statistical analyses. The second author visited the classes, managed the data collection and entered the data. Author TFP drafted the manuscript. Both authors read and approved the final manuscript.

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Short Research Article

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ABSTRACT

Aim: To determine if the use of fidget spinners and stress balls impact college test scores in Introductory Psychology courses.

Study Design: A between-participants experimental design was used. Students were randomly assigned into conditions.

Place and Duration of Study: The study was conducted at Coastal Carolina University, Conway, South Carolina, USA. Fall semester.

Methodology: 170 college students enrolled in Introductory Psychology courses participated in the study. Participants were randomly assigned to use a fidget spinner, a stress ball, or sit quietly for 3 minutes before a unit test in their Introductory Psychology course.

Results: Quantitative data was analyzed using SPSS. There were no statistically significant differences in test scores between the three groups ($P=.28$). The fidget spinner group ($M=75.82$,

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$SD=13.12$), the stress ball group ($M=76.41$, $SD=13.89$), and the control group ($M=79.33$, $SD=11.17$) scored similarly to each other on the unit test.

Conclusion: Using fidget spinners or stress balls do not impact Introductory Psychology test scores.

Keywords: Fidget spinners; stress balls; intervention; students; universities.

1. INTRODUCTION

Fidget spinners gained notoriety in 2017 in the United States, leading the list of Amazon's top selling toys and games [1]. In May of 2017, fidget spinners made up 20% of all toy sales globally [2]. Although fidget spinners vary in size and color, the most common was a three-pronged design approximately 2.5 inches wide that spins around a circle with ball bearings in the center. Although fidget spinners have been around since the 1990s, a series of YouTube videos of teens playing with them doing tricks made the devices go viral [1]. Around this same time, many anecdotal stories discussed the possible advantages of fidget spinners to help individuals with ADHD, autism, or anxiety, calm themselves, focus, and reduce stress. Some of these messages were included with the advertisement of fidget spinners, and parents responded to the marketing and were excited to purchase a toy that may help their child be more successful in school and social interactions. There is mixed scientific support for using fidget toys in an academic setting to improve attention or performance [1, 3].

As part of a summer treatment program, students with ADHD who used fidget spinners displayed less gross motor movements, remained on-task more often, and stayed in their assigned areas more frequently [4]. However, these results only occurred the first-time students were exposed to fidget spinners and the fidget spinner intervention did not improve student attention [4]. In another study, second grade students with ADHD were given fidget spinners to investigate on-task behaviors during language arts class [5]. Multiple records were used to measure on-task behaviors and results suggest that fidget spinners did improve on-task behaviors [5]. Similarly, third graders with attention difficulties were invited to play with a FidgetCube as part of a controlled study in a classroom [6]. Students' classroom behavior and academic productivity did not change after using the fidget device. The authors recommend other behavior strategies and to not encourage the use of fidget devices in the classroom [6].

These past studies focused on young children with attentional difficulties and not the general population. In a third-grade general education class, students provided with fidget spinners performed worse on a math measure [7]. However, as these students become accustomed to the fidget device their performance was less impaired [7]. But what about college students? In a college population, the use of fidget spinners was found to impair memory performance for a video lecture [8]. Using the fidget spinners was associated with attention challenges, lowered judgements of learning, and poorer memory of material covered in the lecture. Researchers tested their hypotheses in both within-participants and between-participants designs. All participants had neutral or positive views of using fidget spinners [8].

Given the mixed results of previous studies, we wanted to investigate whether using fidget spinners and stress balls immediately before a college exam would impact performance on unit course exams compared to classes which did not use fidget spinners or stress balls. Stress balls are a variation of a fidget device.

2. METHODOLOGY

2.1 Participants

College students ($N=170$) enrolled in six sections of Introductory Psychology (PSYC 101) during the fall semester participated in the study. Sections were taught by two instructors, covering identical course material. All students in these six sections were invited to participate and all accepted. The majority of participants were women (73.5%).

2.2 Materials and Procedure

Before the fourth unit test, the instructor asked students to either use the fidget spinner (see Fig. 1), the stress ball (see Fig. 2), or to sit quietly for 3 minutes. The students then completed their fourth psychology test and a demographic survey at the end. The demographic survey asked if students were diagnosed with ADHD and

whether they took medication for the ADHD. The demographic survey also asked participant sex and whether students believed these fidget devices affected their test performance.



Fig. 1. Fidget spinner



Fig. 2. Stress ball, in the shape of a human brain

3. RESULTS AND DISCUSSION

Quantitative data was analyzed using SPSS by conducting a series of ANOVA (analysis of variance) tests. The fidget spinner group ($M=75.82$, $SD=13.12$), the stress ball group ($M=76.41$, $SD=13.89$), and the control group ($M=79.33$, $SD=11.17$) scored similarly to each other; there were no statistically significant differences between groups, $F(2, 177)=1.28$, $P=.28$. Participant sex and whether they believed the fidget spinner/stress ball affected their performance (42% in the stress ball condition and 34% in the fidget spinner condition believed they affected their performance) were added as independent variables and additional ANOVAs were conducted, but none of these factors produced significant interactions with

condition. We also controlled for whether students had been diagnosed with ADHD or were taking ADHD medications and no differences in results were found.

The results of the current study suggest fidget spinners and stress balls do little to affect student test performance, but future research should clarify whether improvements occur for certain groups of students (high/low achievers, minorities, etc.) as well as the mechanism that potentially makes using fidget spinners and stress balls effective (i.e., short-term vs. long term use, continuous use while performing the task, etc.). We only used the fidget spinners and stress balls immediately before a test.

We recognize there were many limitations with the current investigation. We did not evaluate changes in anxiety or focus, only test performance in an Introductory Psychology course in college. Future research could study other types of activities with less serious grade consequences for poor preparation and performance such as studying, reading, listening, or group work sessions, as these results may be different.

It should be noted that in many educational settings around the United States and the United Kingdom, fidget spinners have been banned due to their potential to distract both the users and those around them [9]. Therefore, it's essential to recognize and respect any rules or guidelines set by schools or institutions regarding the use of fidget spinners or any similar items.

Besides using fidget spinners and stress balls to improve test performance, there are many other proven strategies that should be encouraged to improve test performance. Practicing effective study techniques [10], maintaining a balanced lifestyle [11,12], managing stress through relaxation techniques [13,14], and seeking support from teachers, counselors, or other professionals who can provide guidance tailored to specific student needs are recommended. Additionally, mini-rituals before tests may be beneficial to academic performance by reducing test anxiety [15,16].

4. CONCLUSION

When it comes to college test scores, there is no strong scientific evidence to suggest that fidget spinners or stress balls directly impact academic performance. While fidget spinners and stress

balls might help some individuals concentrate and manage anxiety in certain situations, their impact on actual test scores was not found in the current study. Factors such as studying habits, preparation, and overall focus, are more crucial determinants of academic success.

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CONSENT

All participants completed an informed consent form prior to participation in this research study.

ETHICAL APPROVAL

This research was reviewed and approved by the Institutional Review Board (IRB) at Coastal Carolina University.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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