

## An Experimental Study on the Influence of Brain-Break in the Classroom on the Physical Health and Academic Performance of Fourth Grade Students

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**Abstract :** Introduction: As a result of the decline of students' physical health level and the increase of study pressure, students' academic performance is not so good. Objective: This study aims to verify whether the Brain-Break intervention in the fourth-grade classroom of primary school can improve students' physical health and academic performance. Methods: According to the principle of no difference in pre-test data, students from two classes of grade four in Fuhai Road Primary School, Fushan district, Yantai city, Shandong province, were selected as experimental subjects, including 50 students in the experimental class (25 males and 25 females) and 50 students in the control class (24 males and 26 females). The content of the experiment was that the students were asked to perform a 4-minute Brain-Break program designed by the researcher in the second class in the morning and the afternoon, and the intervention lasted for 12 weeks. In addition, the lung capacity, 50-meter run, sitting body forward bend, one-minute jumping rope and one-minute sit-ups stipulated in the national standards for physical fitness of students (revised in 2014) were selected as the indicators of physical health. The scores of Chinese, Mathematics, and English in the unified academic test of the municipal education bureau were selected as the indicators of academic performance. The independent-sample t-test was used to compare and analyze the data of each index between the two classes. The paired-sample t-test was used to compare and analyze the data of each index in the two classes. This paper presents only results with significant differences. Results: in terms of physical health, lung capacity ( $P=0.002$ ,  $T=-2.254$ ), one-minute rope skipping ( $P=0.000$ ,  $T=3.043$ ), and one-minute sit-ups ( $P=0.045$ ,  $T=6.153$ ) were significantly different between the experimental class and the control class. In terms of academic performance, there is a significant difference between the Chinese performance of the experimental class and the control class ( $P=0.009$ ,  $T=4.833$ ). Conclusion: Adding Brain-Break intervention in the classroom can effectively improve the cardiorespiratory endurance (lung capacity), coordination (jumping rope), and abdominal strength (sit-ups) of fourth-grade students. At the same time, it can also effectively improve their Chinese performance. Therefore, it is suggested to promote micro-sports in the classroom of primary schools throughout the country so as to help students improve their physical health and academic performance.

**Keywords :** academic performance, brain break, fourth grade, physical health

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