

## ARTICLE REVIEWED

### ***Effects of an Interdisciplinary Approach Integrating Mathematics and Physical Education on Mathematical Learning and Physical Activity Levels***

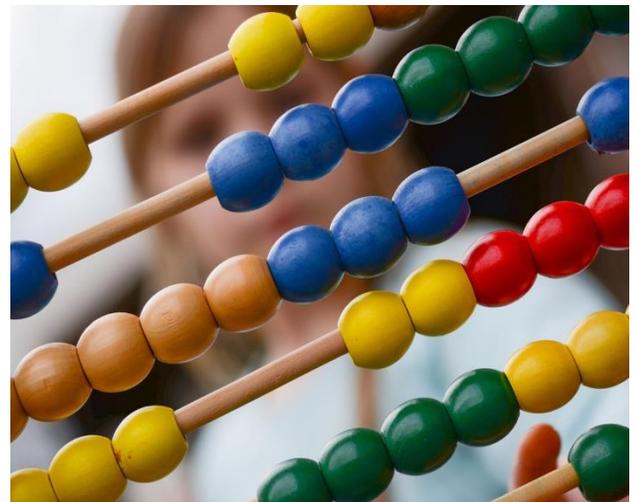
Cecchini, J. A., & Carriedo, A. (2020). Effects of an interdisciplinary approach integrating mathematics and physical education on mathematical learning and physical activity levels. *Journal of Teaching in Physical Education*, 39, 121-125.

#### **THE PROBLEM:**

Research has shown that participating in regular physical activity can increase mental health benefits. Additionally, physical activity has been known to benefit an individual's academic achievement.

The effects of physical inactivity have also been studied and findings indicate that children risk both their physical and mental health status. For example, students may become obese and/or students may struggle with their attention span in and outside of the classroom.

Researchers believe that students will experience greater success — both mentally and physically — if two separate content areas merge together, rather than operate individually. Researchers call this an interdisciplinary curriculum.



#### **Research Summary:**

Researchers wanted to see if an interdisciplinary curriculum of math and physical education would have any effects on physical (in)activity levels and the learning of subtraction among 46 first grade students from northern Spain. One group (23 students) was considered the traditional curriculum group. This group attended physical education and math separately; the curricula were not connected. The other group (23 students) was called the interdisciplinary curriculum group. This group learned about subtraction through physical activity. All participants were asked to answer as many subtraction problems as they could within a four-minute time frame. This test was taken before and after the study to see if there were any significant differences. Physical activity data were collected by having all first grade participants wear accelerometers during each lesson over the course of a three-week period.

#### **Conclusion:**

Both the traditional curriculum group and the interdisciplinary curriculum group improved their subtraction knowledge by the end of the study. However, students in the interdisciplinary curriculum group scored higher on their subtraction learning than the students in the traditional curriculum group. Significant increases in light and moderate-to-vigorous physical activity (MVPA) were demonstrated by the students in the interdisciplinary curriculum group. Additionally, sedentary levels were significantly reduced in the interdisciplinary curriculum group. Students that learned about math in physical education spent less time being sedentary when compared to the traditional curriculum group.

#### **Key Takaway:**

There are benefits to educating students through integrating classroom curricula in physical education. When you combine motor skills with cognitive skills, students are able to make meaningful connections that help them to think through cognitive tasks. All in all, this instructional approach reduces sedentarism and increases problem solving skills, especially when it comes to subtraction.



### ADDITIONAL RESOURCES:

- TGMD-2: <http://33202576.weebly.com/uploads/1/4/6/8/14680198/tgmd-2-2.pdf>