

ABSTRACT

BACKGROUND:

Educators, researchers, and health care providers working with children have long been interested in understanding what causes children with average intelligence to suffer from academic underachievement, particularly when these academic difficulties are not the result of physical, social and environmental factors. The stress to perform and its accompanying physiological and behavioral stress response can result in mood swings, emotional distress, loss of sleep and cognitive impairment. Preliminary studies have also shown both exercise and yoga to improve attention, memory and physical performance in socially disadvantaged children when compared to dance. Studies have also shown that yoga practices that involve *āsanas*, breathing and meditation improve spatial memory scores and show improvement in letter cancellation task and aerobic capacity. However, these findings have limitations as they are from a small cohort of population with different approaches being used across studies.

AIM:

To evaluate the effects of yoga program versus physical exercise on executive function and physical performance measures in school children

OBJECTIVES:

1. To evaluate the effects of yoga vs physical exercise on executive function such as attention span, working memory and mental speed in higher primary and high school children in rural areas.
2. To evaluate the effects of yoga vs physical exercise on cardio-respiratory fitness and physical performance, strength, balance and flexibility in higher primary and high school children in rural areas.

METHODS:

PARTICIPANTS:

A total of 802 students were randomized to receive either yoga (n=411) or physical activity (n=391) intervention across ten schools.

INTERVENTION:

The intervention group received daily yoga classes on school working days for a period of two months of the study while the physical training group received a standard test of physical exercises to maintain physical fitness.

ASSESSMENTS:

Were done before intervention and after two months of intervention.

DATA EXTRACTION:

Data was analyzed using SPSS 18.0 for Windows using an intention to treat approach. The mean difference following intervention was compared between groups using independent samples t-test and within groups compared using paired samples t test. For variables with a non-normal distribution we used independent samples Mann Whitney test and Wilcoxon's test.

RESULTS:

There was a significant increase in net scores of Six Letter Cancellation Test ($t = -4.21$, $p < 0.001$) Digit Letter Substitution Test ($t = -4.9$, $p < 0.001$), in yoga compared to physical exercise groups.

There was significant improvement in Alphabetical Trail Making Test (TMTA) in yoga group ($t = 3.46$; $p = 0.001$), as compared to control groups.

There was a significant improvement in all cardio respiratory fitness measures within yoga and exercise group following intervention. Similar improvements were observed for measures of strength and balance. However, there was significant increase in Hand grip strength in yoga compared to physical exercise group ($t= -1.12, p < 0.001$).

CONCLUSIONS:

The results suggest that the effects of yoga are better in improving performance measures on mental tasks compared to physical performance measures /physical intervention in higher primary and high school children.