

# Does Physical Exercise Affect 7N's Ability To Focus?

**Aim-** To investigate if exercise affects the ability to focus. Results will be determined by comparing the test results of 7N, with and without exercise.

**Hypothesis-** That if the amount of exercise is increased 7N students' ability to focus will also increase. This is because exercise enhances blood flow to your brain, which allows healthy brain functioning.

**Explanation of the test-** To complete the colour test students were timed saying a list of 20 words. They were to say the colour of the word not the word. If they made a mistake they had to start over with the timer still going.

## Figure One- Example Test

PURPLE GREEN BLUE  
 ORANGE YELLOW YELLOW  
 BLUE GREEN ORANGE  
 GREEN YELLOW BROWN  
 GREEN GREEN PINK PINK  
 PINK ORANGE ORANGE  
 PURPLE

- 1.) 7N individually completed the colour test after a 50 minute lunch break at the start of a 85 minute sport lesson. Their times were recorded.
- 2.) Students again completed this test after the sport lesson. Their results were recorded.

## Method- Day One 12/09/19

## Day Two 16/09/19

- 1.) The same students individually completed the colour test after a 50 minute lunch break at the start of an 85 minute science lesson. Their times were recorded.
- 2.) Students again completed the colour test after the science lesson. Their results were recorded.

## Does Exercise Affect Your Cognitive Functioning?

Exercise positively affects cognitive functioning in many ways. Scientific evidence demonstrates the connection between physical fitness and an increase in energy, a sharpening of focus, a reduction of stress and anxiety and an improved mood. When exercising blood pressure and flow increases everywhere in the body, including the brain. This increases energy and oxygen which helps the brain function. Exercise also reduces stress and anxiety, increasing the brain's ability to focus. Exercise also helps control impulses which leads to more calculated thinking. Regular intense exercise can also help the brain long term. Exercise changes the brain in ways that slow down memory loss and increase thinking skills. This is because the hippocampus, the part of the brain critical for learning and memory is highly active during exercise. Further research found that this also leads to increased spacial awareness. Students who exercise perform better on tests, and aerobic exercise can reverse hippocampus shrinkage. Exercise benefits cognitive functioning in several ways.

The results beg to differ with the hypothesis and research. It was found that the test results worsened after sport, but improved after the science lesson. This could be due to a number of different things. It was found that many students disliked having to start again and, particularly after the sport lesson, protested or even refused restarting the test. Although this might have something to do with the slower test result recorded after the lesson, it could also be because they were making more mistakes. 7N students all had different levels of participation in the 85 minute P.E lesson and that might account for the wide spread of results. Another theory is that after physical activity you are more likely to take risks and many students preferred to do this rather than take their time, which would have likely led to a less mistakes. Whereas after a science class, especially after a test, you are less likely to take risks and are already focused and in 'the zone'. According to the results physical exercise does not benefit a person's ability to focus.

There are various areas where further research could be conducted. Research could be conducted into the topics of what food the students at and also into how a person's long term fitness affects their test results. Another factor that may play a part in someone's cognitive speed is their gender. Something that might have affected the results and could be further researched and tested is the affect of the person's physical capability and the regularity of their exercise. One final area for further research is how a person's education affects their focus.

Some aspects of this experiment could be improved to gain more accurate data. The results may have been affected by the participants eating different food before the test was conducted. Another way the data may have been affected is by the students completing different activities in the lunch break before the survey. These two areas could have been improved by selecting a different time slot to test 7N.

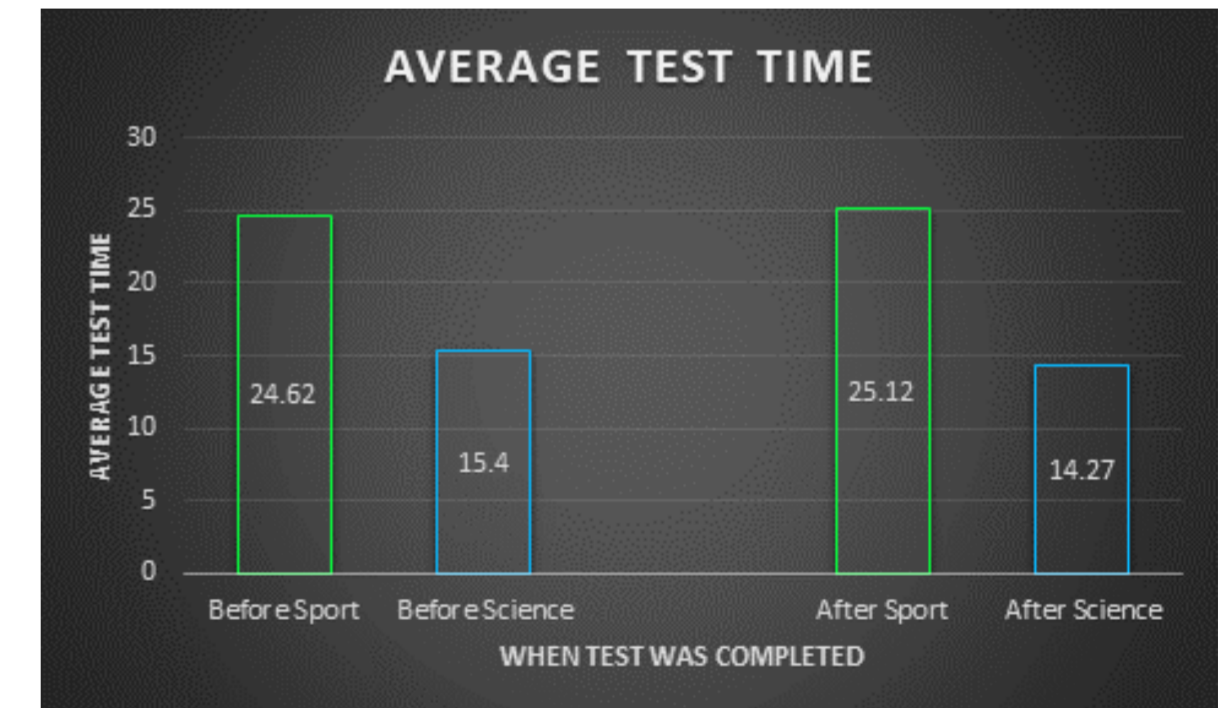
## Conclusion:

By testing 7N's ability to focus before and after sport and science it is clear to see that even though sport is meant to help cognitive functioning, in 7N's case, it did not. The hypothesis of sport increasing one's ability to focus was proved to be incorrect in this experiment. This is shown by the improvement times in both sport and science. This means that sport does not improve focus in all cases.

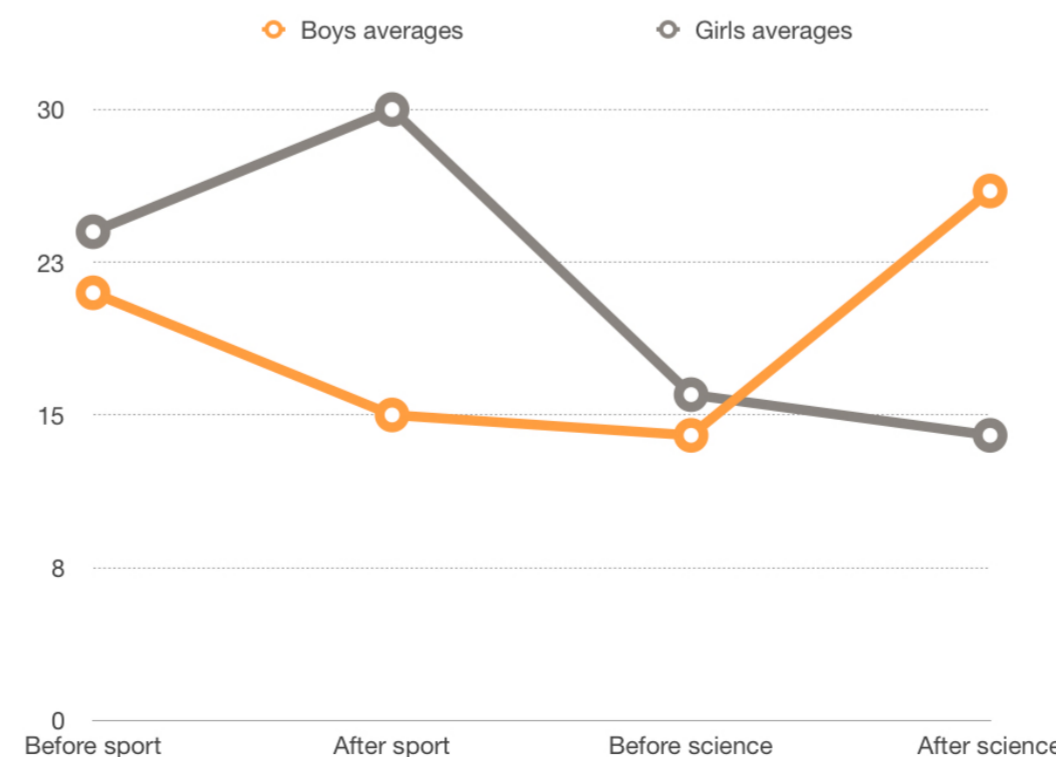
**Table One- Colour test times (seconds)**

Student (Gender)	Before sport	After sport	Improvement	Before science	After science	Improvement
One (F)	40.53	17.98	22.55	13.55	16.28	-2.73
Two (M)	50.66	37.26	13.40	22.05	24.81	-2.76
Three (M)	18.70	14.46	4.24	12.30	15.50	-3.20
Four (F)	14.95	10.91	4.04	11.12	9.72	1.40
Five (M)	18.54	34.24	-15.70	11.46	13.69	-2.23
Six (M)	16.16	13.99	2.17	14.29	10.64	3.65
Seven (M)	27.59	14.48	13.11	11.39	11.10	0.29
Eight (F)	18.20	14.20	4.00	12.66	13.55	-0.80
Nine (F)	21.62	41.47	-19.85	16.89	14.05	2.84
Ten (F)	29.07	55.93	-26.86	19.26	18.36	0.90
Eleven (F)	22.06	48.49	-26.43	21.13	12.48	8.65
Twelve (M)	27.30	13.22	14.08	20.51	11.79	8.72
Thirteen (M)	20.70	17.24	3.46	14.81	13.09	1.72
Fourteen (F)	18.66	17.76	0.90	14.16	14.69	-0.53
<b>Average</b>	<b>24.62</b>	<b>25.12</b>	<b>-6.17</b>	<b>15.40</b>	<b>14.27</b>	<b>13.08</b>

**Figure Two- Boys vs girls averages (seconds)**



**Figure Three- Average times before/after sport/science (seconds)**



## Bibliography

Godman, H. (2019). Regular exercise changes the brain to improve memory, thinking skills - Harvard Health Blog. [online] Harvard Health Blog. Available at: <https://www.health.harvard.edu/blog/regular-exercise-changes-brain-improve-memory-thinking-skills-201404097110> [Accessed 17 Oct. 2019].

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