**Improving Academic Results of School Aged Children Through the Use of Physical Activity**.

**Summary**

Mason Munzberg’s Year 12 2018 Research Project focused on the benefits of physical activity upon school aged children’s academic results. The outcome displayed various connections between the two topics and multiple sources displayed reliability of statements made. It was found that physical activity has a positive impact on academic results and the cognitive functioning of the brain through the release of hormones resulting in increased academic results. Additionally, it was found that physical activity was having the most significant impact upon children around the adolescent stages of life with no real conclusion into which gender was advantaged greater. Finally, it was found that a threshold amount of 60 minutes of physical activity per day gave students the greatest chance of boosting academic results. Dick Telford (2018) stated, allocating time within class to physical activity was more than made up for once children returned, as students were more alert, concentrated and willing to learn.

**Introduction**

Sport and physical activity has been known to promote the positive impacts on a child’s mental and physical health. Research (Telford, 2014; Crozier, 2018; Sallis, 2015) shows physical activity enhances the cognitive functioning of a child’s brain furthermore improving a child’s ability to learn within and out of school (Martin, 2010). More and more schools are ditching physical active programs and replacing them with more academic based work. This worrying trend aims to enhance a child’s learning but has been found to be the very thing holding children back from reaching their maximum learning ability.

Physical Activity is defined as the movement of any body part and requires more energy than at rest. This may include running, jogging or walking (U.S. Department of Health & Human Services, 2013). Academic results are defined as the outcome of a score relating to education (Oxford Dictionary, 2018).

According to Telford (2018) the correlation between physical activity and academic performance is strong and the benefits of implementing these types of programs will astonish the reader. The information and data collected through research presented below will show that physical activity enhances cognitive functioning.

**To what extent does being physically active impact upon academic results?**

The research (Wyllie, 2018; Telford, 2014; McKenzie, 2016) is clear that physically active students achieve higher grades academically. Countless studies performed by numerous professionals in this field of expertise have found this to be the case. An interview with Professor Dick Telford, Australia’s most well-known sports scientist and one of the top coaches in long distance running (Runner's Tribe, 2017), supported this. Telfords study involved 29 schools in which 13 completed two 45 minutes of extra physical active lessons each week, while the other 16 schools of similar socioeconomic status performed physical education in their usual manner. Of these 29 classes ranging from students between grades 2-6, it was found that those children with specialized physical education improved their Naplan Numeracy and Literacy scores by around 10 more points than the control group. Reading improved by an average around 6 points (Telford, 2014).

Eline Wyllie’s (2014) program consisted of a 15-minute break each day to either run, jog or walk in the fresh air. Results after just 12 weeks showed children performed 25% better than predicted in SATs exams and teachers were reporting that children were more focused on tasks set and resilient when completing these set task (McKenzie, 2016). In addition, children felt more awake, had increased self-esteem, quicker response time and significantly longer attention spans (Wyllie, 2018).

An interview conducted with university lecturer and Bachelor of Exercise and Sport Science Alyson Crozier (2018) found that physical activity is one of the best recreational activities to boost academic results. Paul Zientarski (2018), a retired PE teacher from Naperville, Illinois, noted that a study performed in California showed more fitness testing completed by children ranged 10-13 resulted in improvements within the state testing’s. Numerous articles from the British Journal of Sports Medicine (Martin, 2010; Fox, 2009; Sallis 2015) have also demonstrated the link between physical activity and cognitive functioning to help boost academic results.

These studies demonstrate that physical activity has a positive impact amongst school aged children. This raises the question; why is physical inactivity identified as a global pandemic yet the results clearly demonstrate that physical activity has more positive impacts on an adolescent than just the physical side of things. Within Australia, the increased technology consumption in children along with participation in physical activity and sport decreasing is a worrying trend. As seen in figure 1, this link may result in Australian teens falling behind internationally (Wilson, 2015).

**Are the results of being physically active on academic results different for different cohorts?**

Being physically active does somewhat differ for different cohorts. There is no real definite answer to which gender this type of intervention targets. The recommended age for maximum results is suggested around the adolescent and preadolescent stage of life (Verburgh, 2013), but studies performed have found that university students are benefitting from increased physical activity in their lives, just not as much as children around the adolescent stages (Crozier, 2018), this is demonstrated in figure 2.

Gender differences cannot be spilt, there is no study showing whether males or females are impacted greater. Wiley (2018) found that for high school female’s, physical activity and team sport participation were both associated with a higher-grade point average (GPA). Whereas for the male counterparts, only sport participation saw a higher GPA. Fox (2009) found for middle school students no separation between physical activity and higher GPA was found. Professor Dick Telford (2012) found males generally responded better than females in Naplan testing. This lack of agreement suggests no real conclusion can be made to which gender responds better.

**What activity produces the best outcome in academic results?**

It has been found that all physical activity is highly beneficial amongst a child’s cognitive functioning (Department of Sport and Recreation, 2010). Multiple studies have different perspectives on how much physical activity and what type of physical activity gives the best outcome. Data collected indicates that physical activity programs within schools administered by a specialist teacher compared to 10 minutes of a specific coordinated activity from a teacher with PE expertise, the results were more efficient and showed better results because of the increased attention spans and concentration of student’s (Cunningham, 2012).

Zientarski (2018) found high intensity work outs are the best in preparing a student’s brain to learn. Global Planet (2010) discovered a threshold amount of physical activity must be met to acquire learning benefits but to advance learning further vigorous physical activity must be obtained. Shephard (1997) noted that 14-26% of class time should be allocated to physical activity as learning occurs more rapidly per unit of classroom time, with an acute amount of physical activity executive, cognitive functioning of the brain can be enhanced.

The Daily Mile program implemented within schools across the UK described 15 golden minutes of fresh air where children either run, jog or walk at their own pace allows all children to succeed regardless of age, ability or circumstances. After 15 minutes, children were more focused and ready to learn within the classroom then before and this may contribute to improvements in academic results in 80% of these children (The Daily Mile, 2017). The Learning Readiness Physical Education program that has been implemented in Illinois targets improvements in academic results through changing physical education classes from sport based to fitness based. Along with the improvements in academic results the LRPE has found that children are attending school and behaving better than before. America, one of the largest country’s in the world is ranked 36th for math and only 28th for science. After just one year of LRPE, the results found that the school placed first for math and 6th for science in the TIMMS test (Zientarski, 2015).

All physical activity acts as fertilizer to our brains and to just choose one activity that produces the best outcome in academic results is almost impossible as different students require different needs.

**How does being physically active have an impact upon the brain?**

Students within school are required to sit and concentrate for hours on end without a break however a student’s concentration span has been found to only last 15-20 minutes before becoming distracted (Crozier, 2018). Given that mind and body develop at the same time, one would expect that stimulating metabolic processes would ultimately feed the brain via neural and hormonal mechanisms (Telford, 2018). Any interaction of physiological and psychological factors would ultimately improve our thought process. The way we think can affect our thought process which ultimately impacts the way we move (Rately, 2018).

Two parts of the brain (prefrontal cortex and the hippocampus) are found to be much more advanced in physical active children than that of those less fit children (Hillman, 2018), these sections of the brain. These two brain structures are responsible for many abilities leading to higher academic achievement; long term memory, goal making and self-regulation (Mongeau, 2018). There’s an increased cerebral blood flow, glucose levels and neurotransmitter levels because of physical activity also enhancing 10 different structures of the brain volume through MRI measurement and brain function (Álvarez-Bueno, 2016).

Physical activity is having an impact on the cognitive functioning of an individual in more ways than just one. By improving one’s insulin sensitivity and glucose control, has not only health and wellbeing benefitted but also our ability to think which results in better academic performance (Telford, 2018).

**How could my school implement a physical activity to have a positive impact upon academic results?**

Physical activity is having many positive effects on not only academic results but several cognitive functions within the brain. It’s time for our government and schools to do something about this so called ‘global pandemic’ and provide children with a better start to education than ever before (Sallis, 2015). I have asked questions to different professionals who have successfully implemented a program such as this within a school. The Principal of any school would need to be a big advocate and convinced if the program is to be implemented efficiently;

1. Provide evidence about the positive impacts of physical activity on academic results, showing that physical activity can impact a student’s cognitive ability.
2. Show the evidence about the negative impacts of low physical activity levels on academic results, allowing them to see what is happening to those students that aren’t physical active and the negative impact of this.
3. Compare the two impacts, to identify the difference there is, allowing them to see the upside of a physical active program.
4. Suggest the type and how long the physical activity program should last, along with the times throughout the day when it should be performed. This will allow them to decide practically how to put in place the program.

One program recommended involves short 5 minutes breaks of any sort where children would do any type of physical activity outside suited to their ability, to reset their memory so they are more focused when returning to class. For high school students these breaks will occur in the middle of every double lesson as for single lessons students are still physically moving when they are changing classes. For primary school students these breaks will occur three times a day, once before recess, once in between recess and lunch and once after lunch. Within the school system this will be the most suited program with the time lost confidently made up for by more intense concentration and learning taking place after being physical active. As schools don’t have enough time to implement a 60-minute program within their school to fully maximize academic results, a program such as the one above would be best suited. Extra physically activities can be performed by the whole family to maximize the child’s learning ability

**Conclusion**

This report has demonstrated physical activity is having more of a benefit than first thought. It is well accepted the role physical activity plays in health and wellbeing but as seen within this report physical activity is clearly influencing school aged children’s academic performance and many supports this. No gender, race or socioeconomic status (Wyllie, 2018; Telford, 2012) is more specifically advantaged yet for younger children, the results are more beneficial then older students (Hillman, 2009; Verburgh, 2013). The prefrontal cortex and hippocampus have been found to be the two main brain structures that are highly benefitting from physical activity as they are the main two structures associated with high academic results (Hillman, 2018).

Research has found that within Australia there are limited physical activity programs set up within primary and secondary schools despite the overwhelming evidence linking academic results to physical activity (Telford, 2018). This report highlights the evidence showing a positive correlation between physical activity and academic results not just within Australia but the UK and America. Many reports (Wyllie, 2018; Crozier, 2018) suggest that time taken away from lessons to perform programs are more than made up for when children return to class after being physical activity.

To maximize academic results through physical activity based on all the research information gathered in this study it is suggested all primary aged children should perform at least 60 minutes of physical activity per day whether that be in the form of sport or just running/ walking around (Crozier, 2018). Some studies suggest benefits can be achieved with as little as 5 minutes of light exercise during school hours (Rately, 2018).

The number one challenge to see these programs set up not only locally but all over Australia, getting children involved and performing the set activity to benefit their academic results.

**More Information / Useful Links**

[***https://thedailymile.co.uk***](https://thedailymile.co.uk)

[***https://www.cdc.gov/healthyschools/physicalactivity/index.htm***](https://www.cdc.gov/healthyschools/physicalactivity/index.htm)

[***http://www.thewalkingclassroom.org/our-program/why-the-walking-classroom-works/***](http://www.thewalkingclassroom.org/our-program/why-the-walking-classroom-works/)

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