

The potential benefits and costs of participation in school sport

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Introduction

There is some consensus on the impacts of physical activity on psychological factors in the general population. Drawing on clinical and epidemiological studies, as well as narrative and meta-analytic reviews, it can be concluded that physical activity, usually of a moderate level:

- has a small-to-moderate beneficial effect on anxiety reduction and stress reactivity
- has a moderate-to-large beneficial effect on mild to moderate depression
- has a small effect on self-esteem and a moderately favourable effect on self-perceptions, mood and psychological well-being
- has been associated with positive effects on selected measures of cognitive function and Psychological adjustment

There is much less research and consensus about the involvement of sport and young people. Recent reviews report associations between physical activity and academic attainment in children and adolescents (e.g. Singh et al, 2012; Biddle & Azare, 2011). One example of excellent research, (Booth et al ,2014) using a longitudinal sample of 4745, concluded that there was a long-term positive impact of physical activity on academic attainment in adolescence. It is however clear that previous research has been equivocal, with little solid evidence of a specific link between physical activity and academic performance (e.g. Singh et al, 2012; Biddle & Azare, 2011; Booth et al, 2014).

A small number of studies have directly examined physical activity in relation to wellbeing in schools. Psychological wellbeing of students has arguable become the key issue both in educational establishments and in governmental policy. It is, for example, reported that 1 in 10 of children and young adults have significant mental health issues. (Steptoe and Butler, 1996) reported data from a cohort of 5,061 adolescents. They noted that 'greater participation in vigorous sports and activities was associated with lower risk of emotional distress'. (Allison et al, 2005) analysed data from 2,104 Canadian adolescents and showed a significant negative relationship between sports involvement and problems with social functioning.

There has also been a recent increase in interest about character development in young people. Character is however, poorly defined. The traits, attitudes and behaviours often discussed include:

- perseverance, resilience and grit
- confidence and optimism
- motivation, drive and ambition
- neighbourliness and community spirit
- tolerance and respect
- honesty, integrity and dignity
- conscientiousness, curiosity and focus

Mental toughness has been linked closely with character and can be viewed as a general marker for character. (Clough et al. 2002) conceptualise mental toughness as a global construct that can manifest in any area of life, including personal relationships, vocational endeavours and sport. Mental toughness is a positive psychological variable, relating to success and has properties that are beneficial for it goes beyond accepting and dealing with anxiety. Rather it is actually seeking out, and thriving, in anxiety eliciting situations. Mental toughness enables individuals to cope with stress effectively but it also allows them to *proactively* seek out opportunities for self-development rather than just *react* to stressful circumstances. It has been suggested that sporting involvement can be a vehicle for the development of mental toughness (e.g. Crust and Clough, 2011).

If physical activity can enhance academic achievement there are three broad causal pathways that may be involved: (a) cognitive enhancement: (b) improvements in well-being and/or (c) improved character/resilience. **Cognitive enhancement:** There is an emerging body of evidence that physical activity in childhood and adolescence has cognitive effects that should be conducive to improved academic attainment. In a review (Chaddock et al ,2010) suggested that low physical activity can have detrimental effect on brain structure and function and that these effects are related to cognitive performance and academic attainment. **Enhanced Well Being:** a small number of studies have examined this area. (Steptoe and Butler, 1996) reported data from a cohort of 5,061 adolescents. They noted that 'greater participation in vigorous sports and activities was associated with lower risk of emotional distress'. (Allison et al, 2005) analysed data from 2,104 Canadian adolescents and showed a significant negative relationship between sports involvement and problems with social functioning. **'Improved Character':** Mental Toughness has been linked to both

academic performance (e.g. St Clair-Thompson, 2014) It encompasses most, if not all, of the traits, attitudes and behaviours related to character stated above.

The Study

The Purpose

The purpose of the study reported here was to investigate the potential benefits and costs of an involvement in sport at school, focussing on academic performance, well-being and mental toughness.

The Sample

After gaining ethical approval from Manchester Metropolitan University, data was obtained from 1482 year 12 students from independent schools. There were 60% males and 33% females, with 7% preferring not to say. Nineteen independent schools took part in this study.

The Measures Used

In addition to basic demographic identifiers, information was obtained on:

- Academic Performance: GCSE's and MidYIS
- Character: Mental Toughness (MTQ18)
- Psychological Wellbeing: 5 Items
- Involvement in sport
- Involvement in other extracurricular activities

Academic Performance Data

Two measures were used. An aggregated measure of average GCSE performance (*points allocated for each grade/number of GCSE's*) and MidYIS.

The mean MidYIS score was 111.5 (n=721). The mean MidYIS constituent sub-scale scores were also obtained: Vocabulary 113; Maths 116; Nonverbal 113 and skills 110. The Mean GCSE score was 6.9 (n=697)

Participation in Sports

A wide range of sports were participated in. The dominant activities were: Football; Badminton; Cricket; Gym; Hockey; Netball; Rugby and Tennis. The average number of hours spent in school on these was 4.2. The average number of hours outside school was 3.4. Fifty-five percent of the students reported that at least one of their parent was actively involved in sports on a regular basis.

The Key Findings

Students were asked to give a subjective rating of the amount of time they participated in sports. These are reported in Table 1a and Table1b.

Table 1a: How involved in sports WITHIN school are you?

Not at all involved	8%
A little involved	24%
Quite Involved	18%
Involved	22%
Very Involved	28%

Table 1b: How involved in sports OUTSIDE school are you?

Not at all involved	17%
A little involved	24%
Quite Involved	22%
Involved	20%
Very Involved	17%

Students were asked how their involvement in sport impacted on their school work. This is reported in Table 1c.

Table 1c. Overall do you think your sports involvement has

Negatively impacted on my school work	5%
Positively impacted on my school work	44%
Had no impact	36%
Don't know	15%

Many of the pupils spent significant amounts of time playing sport within and out of school. It is very interesting to note that very few thought it negatively impacted on their school work, whilst the majority thought it helped.

(c) The link between physical activity and wellbeing

In the current study positive associations were found between sports activities and wellbeing: *Sports involvement in school vs Wellbeing* $r=0.21$ $p<0.001$: *Sports involvement outside school vs wellbeing* $r=0.19$ $p<0.001$

(d) The link between physical activity and mental toughness

Significant relationships were found between sports' involvement and mental toughness. The level of sports involvement was associated with higher toughness scores: **Sports involvement in school vs MT** $r=0.19$ $p<0.001$: *Sports involvement outside school vs MT* $r=0.21$ $p<0.001$

(e) The link between mental toughness and wellbeing

There was a very strong association between mental toughness and wellbeing: *MT vs Wellbeing* $r=0.53$ $p<0.001$

(f) Academic Performance, Mental toughness and Well Being

There were NO identified links between an involvement in sport and academic performance but there were some trends relating to wellbeing and mental toughness. These are reported in Tables 2a, 2b, and 2c

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Table 2a: A comparison of GCSE performance (categorised into 4) with Toughness

	Mental Toughness
Lowest Performing Group	59.7
Low Middle	62.4
High Middle	61.6
Best Performing Group	62.2

Table 2b: A comparison of MidYIS performance (categorised into 4) with Toughness

	Mental Toughness
Lowest Performing Group	61.2
Low Middle	58.2
High Middle	61.2
Best Performing Group	61.1

Table 2c: A comparison of MidYIS performance (categorised into 4) with Wellbeing

	Well Being Score
Lowest Performing Group	20.3
Low Middle	18.9
High Middle	20.6
Best Performing Group	20.1

These three pieces of data fit a 'classic pattern' within the mental toughness research domain, with the very lowest performers having the very lowest wellbeing and mental

toughness scores. So although physical activity does not link directly with performance it may do so via the wellbeing and toughness of students.

Taken together, this data also suggest that the most **vulnerable** group are the pupils in the Low/Middle performance group. This lower wellbeing and mental toughness may inhibit them reaching their full potential.

(g) The link between physical activity and mental toughness

Significant relationships were found between sports' involvement and mental toughness.

The level of sports involvement was associated with higher toughness scores:

Sports involvement in school vs MT $r=0.19$ $p<0.001$; *Sports involvement outside school vs MT* $r=0.21$ $p<0.001$. These results suggest that sport can be a significant factor in the building of character building, which turn relates to higher levels of wellbeing and possibly academic performance.

Discussion

The results reported here suggest that an involvement in sport whilst at school is advantageous. There is a very strong long link between an involvement in sports and better psychological functioning (wellbeing) and higher levels of mental toughness.

There was no clear link between and involvement in sport and academic performance. However, the link between sport and mental toughness and wellbeing does suggest a possible mechanism that may potentially improve performance in some contexts.

The sample utilised in this study was largely drawn from selective schools and there was a clear restriction of range effect, with most pupils performing well. It is suggested here that in a more diverse sample there may indeed be clear links between sport and performance. The 'pre-cursors' appear to be in place. This suggestion is supported by the findings of a

recent large scale study of Italian school children that shows a consistent link between mental toughness, a correlate of sport and performance (Papageorgiou et al., 2018). Future research is encouraged to try and bottom out this hypothesis.

An important point is that there is no suggestion that an involvement in sport has a negative impact on academic achievement. There is a clear and continuous pressure within the curriculum to reduce time for perceived non-core activities. In the world of 'league tables' this is understandable, but regrettable. The results reported here show a clear association between an involvement in sport and enhanced wellbeing and higher levels of mental toughness. Both of these are arguably legitimate end points in their own right. Sport offers the opportunity to help to produce healthier, happier and more fully rounded individuals, with no apparent academic penalty. It is clear that education should be much more than exam results and there is a clear move towards recognising the importance of wellbeing when judging the impact of quality of education. Whilst slow, this increasing recognition now has its own momentum and will hopefully continue

Conclusion

This research shows the importance and usefulness of a balanced non-academic portfolio and the particular importance of sport for student wellbeing and character development.

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