

Effect of impaired vision on physical activity from childhood to adolescence

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Background

Physical activity (PA) levels of children are important indicators and foundations of the current and future health of individuals and the population. There is increasing concern that children with impaired vision may be less likely to be active than those without.¹⁻⁴

Objective

To investigate if impaired vision is associated with reduced levels of PA and differences in the types engaged with in childhood and adolescence, so as to identify barriers or enablers to achieving healthy PA levels.

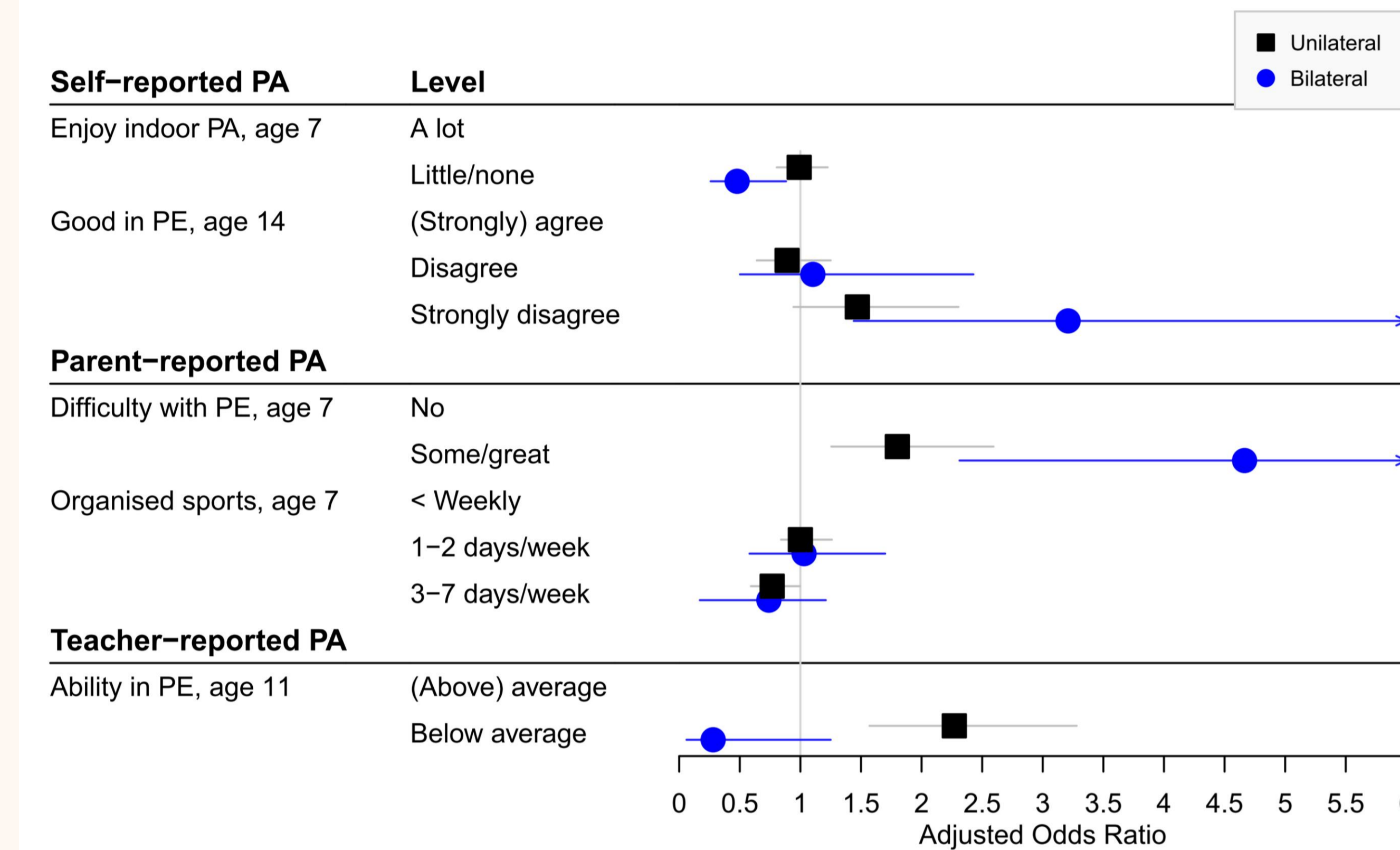
Methods

- Design – Population-based prospective cohort study in the United Kingdom.
- Participants – 11,571 children aged 7 years participating in the Millennium Cohort Study (MCS) followed-up to age 14. Using detailed parental report on eye conditions and treatment coded by clinicians, children were categorised as having no, unilateral, or bilateral impaired vision.
- Outcomes – Levels and age-related trajectories of 16 types of PA reported by participants, parents, and/or teachers. Objective accelerometer-derived time spent in moderate-to-vigorous physical activity (MVPA).
- Modelling – Logistic, ordinal, and quantile regression models fitted as appropriate to investigate associations between impaired vision and independent PA-related outcomes, adjusted for confounders.

Results

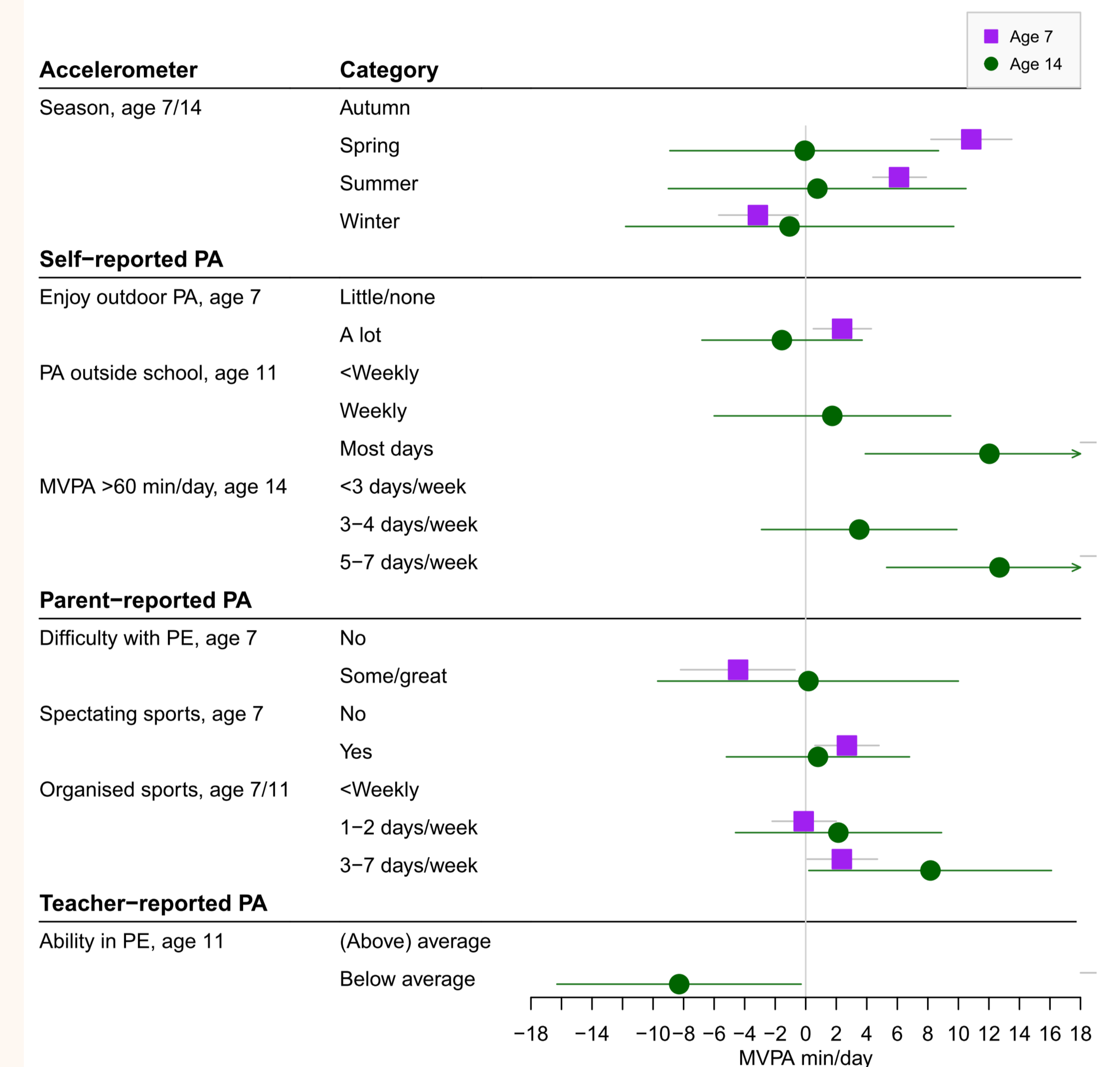
- [Fig 1] Both groups with impaired vision had higher odds than those with normal vision to have difficulties in participating in school physical education (PE) (independent of school type). Children with unilateral impaired vision were more likely to be rated by teachers as having low ability in PE and less likely to participate in organised sport outside of school. Whereas children with bilateral impaired vision were more likely to self-rate their ability in PE as poor and were less likely to not enjoy indoor PA.

Figure 1. Physical activity types by impaired vision compared to normal vision.



- Despite these differences, age-related trajectories of suboptimal PA in childhood tracking into adolescence did not differ by vision status.
- No differences by vision status were seen in other aspects of PE (*enjoyment*), organised sports (*PA outside school, achieving recommended level of MVPA per day*), self-organised sports (*park, parents, siblings/peers*), and hobbies (*spectating, watching, Olympics, outdoor PA enjoyment*).
- Overall, 50% of 7-year-olds and subsequently 41% at age 14 achieved the internationally recommended level of >60 MVPA min/day, irrespective of vision status.
- [Fig 2] At age 7, MPVA was associated with spectating professional sports, enjoying outdoor PA, and difficulties with PE. At age 14, MVPA was associated with self-reported MVPA, organised PA outside school, organised sports in general, and teacher-rated low ability in PE.
- No differences in MVPA were seen by other aspects of PE (*enjoyment, self-concept being good*), self-organised sports (*park, parents, siblings/peers*), and hobbies (*watching, Olympics, indoor PA enjoyment*).

Figure 2. Median daily time spent in MVPA by types of physical activity.



Conclusions

Strategies are needed to increase PA in children with impaired vision so that all can achieve healthy levels. Population-wide programmes to increase PA levels in all children should pay special attention to those with impaired vision and include early interventions to encourage participation and confidence in PE and organised sports, starting in primary school and maintained afterwards.