



Wilkie, H., Standage, M., Sherar, L., Cumming, S., Parnell, C., Davis, A., ... Jago, R. (2016). Results from England's 2016 Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health*, 13(11 Suppl 2), S143-S149. DOI: 10.1123/jpah.2016-0298

Peer reviewed version

Link to published version (if available):
[10.1123/jpah.2016-0298](https://doi.org/10.1123/jpah.2016-0298)

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This is the accepted author manuscript (AAM). The final published version (version of record) is available online via Human Kinetics at <http://dx.doi.org/10.1123/jpah.2016-0298>. Please refer to any applicable terms of use of the publisher.

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Full title: Results from England's 2016 Report Card on Physical Activity for Children and

Youth

Running head: England's 2016 Report Card

Manuscript type: Brief Report

Key words: exercise, policy, sedentary behavior, adolescent guidelines and
recommendations, public health

Abstract word count: 195

Manuscript word count: 4685

Date of Manuscript Submission: 30th May 2016

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Abstract

Background: Regular physical activity improves physical and mental health, yet children's physical activity levels were low in England's 2014 Report Card. Within this paper, we update the 2014 Report Card to assess current information for the nine indicators of physical activity.

Methods: A search for nationally representative data on nine indicators of physical activity was conducted and the data were assessed by an expert panel. The panel assigned grades (i.e. A, B, C, D, F, or INC (incomplete)) to each indicator based on whether children across England were achieving specific benchmarks. The 2016 Report Card was produced and disseminated.

Results: The following grades were awarded: Overall Physical Activity Levels: D-; Organized Sport Participation: D; Active Play: INC; Active Transportation: C-; Sedentary Behaviours: INC; Family and Peers: INC; School: B+; Community and the Built Environment: B; Government Strategies and Investment: INC.

Conclusions: The grades have not improved since the 2014 Report Card and several gaps in the literature are still present. While children's physical activity levels remain low alongside competing sedentary choices, further national plans and investment with local actions are urgently needed to promote physical activity especially via active play, active transport, and family support.

Key words: exercise, policy, sedentary behavior, adolescent, guidelines and recommendations, public health

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Introduction

According to government recommendations, children in the United Kingdom (UK) aged 5-18 years should be engaging in moderate-to-vigorous intensity physical activity (MVPA) for at least 60 minutes every day.¹ However, children's physical activity (PA) levels appear to be low. One recent estimate reported that only 9% of boys and 2% of girls achieved sufficient levels of objectively measured PA.² Given the health risks³⁻⁵ and the economic costs associated with physical inactivity,⁶ it is important to understand the prevalence of PA and sedentary behaviour among children and youth across England, including the extent to which PA is supported by government policy and the built environment.

Active Healthy Kids England was established in 2014 with the aim of providing a 'state of the nation' resource by creating England's first Report Card on Physical Activity for Children and Youth.⁷ Several gaps in the literature were identified and PA levels were generally low despite there being evidence of sufficient provision for PA in England.⁷

The purpose of the present paper is to discuss the results of the 2016 Report Card on Physical Activity for Children and Youth. Specifically, we update the 2014 Report Card via the use of newly available data, including published work from a variety of academic and non-academic sources (e.g., from government and non-government organisations).

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Methods

Active Healthy Kids England consists of an expert panel, including several academics from five Universities across England, and a representative involved in research within a leading non-governmental organisation (Youth Sport Trust; YST). The lead author identified key articles and synthesised the evidence from a range of national surveys, published from 2013-2016. The lead

47 author was also responsible for writing the Report Card and additional resources (e.g., website
48 content). All members contributed to the grade assignment process by providing expertise in
49 their relevant field. In addition, the second author was responsible for creating a media and
50 dissemination strategy with assistance from the YST (fifth author).

51 Nine indicators of PA were assessed: 1) Overall Physical Activity Levels, 2) Organized Sport
52 Participation, 3) Active Play, 4) Active Transportation, 5) Sedentary Behaviours, 6) Family and
53 Peers, 7) School, 8) Community and the Built Environment, 9) Government Strategies and
54 Investment. Data used to inform the grades for these indicators were provided from several
55 national surveys including the Health Behaviour in School Aged Children Study (HBSC),⁸ the
56 Health Survey for England (HSE),⁹ the Millennium Cohort Study (MCS),^{10,11} the Taking Part
57 Survey (TPS),¹² the National Travel Survey (NTS),¹³ and the YST National PE and Sport
58 Survey.¹⁴ Reports from the government and the Office for Standards in Education, Children's
59 Services and Skills (Ofsted) were also referred to throughout, as were regional datasets and
60 reports from other organisations when data were not available from national surveys.

61 The grade assignment meeting took place in April 2016 where members of the expert panel
62 assessed the available evidence, and assigned grades to each indicator once agreement had been
63 reached. The quality of the available data was considered by taking into account the sample size,
64 age range of participants, year of data collection, the reach of the sample (i.e., whether data were
65 collected regionally or across England), and the measures used to collect data. Other factors were
66 considered in the grade assignment, including trends in PA behaviours and the presence of any
67 disparities between groups of children (e.g., age, gender, and ethnic differences). When such
68 differences occurred, a + or – grade was given to reflect this. The following grade boundaries
69 were used: A: 81%-100%, B: 61%-80%, C: 41%-60%, D: 21%-40%, F: 0-20%. An incomplete

70 (INC) grade was assigned where insufficient data were available or due to the absence of a
71 suitable benchmark.

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Results

74 England's 2016 Report Card is the second iteration of a systematic assessment of PA among
75 children and youth. The grades and benchmarks for each indicator are presented in Table 1, and
76 the front cover is shown in Figure 1. No improvement in any indicator has been made since the
77 2014 Report Card. For several indicators (Overall Physical Activity Levels, Organized Sports
78 Participation, Active Transportation, and Schools), the grade has declined, whereas for others
79 (Active Play, Sedentary Behaviours, Family and Peers, Community and the Built Environment,
80 Government Strategies and Investment), the grade remains the same.

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Discussion

83 The expert panel decided to focus the 2016 theme and front cover on informal outdoor PA. The
84 benefits of informal activity, such as active play and active transport, including time spent
85 outdoors in relation to PA are well documented.¹⁵⁻¹⁷ Yet the proportion of children who walk to
86 school has declined since 1995/97,¹⁸ and less than 50% of children use active means to travel to
87 non-school destinations.^{11,19} Furthermore, active play typically occurs outside,²⁰ but it would
88 appear that children spend less time outdoors now than their parents did as they have less
89 'freedom to roam'.^{21,22} Future research is therefore needed on informal outdoor PA, especially
90 given that time spent indoors may largely consist of engaging in sedentary pursuits.²³

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93 Overall Physical Activity Levels: D-

94 A grade of D- was assigned to children's overall PA levels because boys and girls are
95 consistently within the D and F grade boundaries respectively, according to self-reported data
96 from a number of surveys. For example, according to the HBSC, 22% of boys and 15% of girls
97 aged 11, 13 and 15 years are achieving 60 minutes of MVPA per day.⁸ Similar figures were
98 reported in the HSE (21% of boys and 16% of girls aged 5-15 years),⁹ and the UK Household
99 Longitudinal Study (35.8% of boys and 21.8% of girls aged 10-15 years).²⁴ Even lower levels
100 were reported among 15 year olds specifically in the What About Youth Survey (18% of boys
101 and 9% of girls).²⁵ The grade has therefore declined since the 2014 Report Card, in which a
102 grade of C/D was awarded,⁷ though this may in part be due to a lack of available data on children
103 younger than 11 years old. There is also a distinct lack of objective data available to grade this
104 indicator, though existing guidelines were developed using self-reported estimates of PA which
105 raises the question of whether current guidelines are suitable given that objective estimates of PA
106 tend to show much lower PA levels. Despite this, these findings emphasise the need for regular
107 monitoring of children's PA levels, using objective measures on a wide age range of children and
108 youth, in order to track changes in PA behaviour over time.⁷

109 Organized Sport Participation: D

110 Although data from the Active People and Taking Part Surveys show that > 70% of children and
111 youth were doing sport at least once a week,^{12,26} this may include sport inside of school and was
112 therefore not used to inform the grade. On examination of the data for those involved in
113 organized sport outside of school hours the figures are lower. For example, 34.3% of 5-15 year
114 olds reported doing organized sport outside of school; only 27.4% of 11-15s were members of an
115 external sports club and only 19.2% played for a sports team.¹² Yet again, a higher proportion of

116 boys than girls are engaged in organized sport (35% vs. 21%).²⁷ Aside from sport, 39% of 8-11
117 year olds participate in organized leisure-time activities once or twice a week and 20% do so
118 every day or almost every day.²⁸ Given that the majority of data since the last Report Card now
119 resides within the D grade boundary, the grade was reduced from a C- to a D.

120 **Active Play: INC**

121 A lack of available data and appropriate definitional means for measuring this indicator was cited
122 in the 2014 Report Card and an INC grade was assigned.⁷ The same issues are still apparent and
123 consequently, an INC grade was awarded again. Despite this, younger children are likely
124 engaging in active play, particularly during school break times.²⁹ Yet, participation in physically
125 active play declines with age as a function of biological maturity.³⁰ For example, recent data
126 from the MCS show 80% of 5 year olds engage in active play with a parent at least once or twice
127 a week, whereas 54% of 11 year olds do so.¹⁰ Data are therefore also needed on the type and
128 frequency of unstructured PA performed by adolescents, particularly because it may help to
129 reduce health inequalities.¹⁶

130 **Active Transportation: C-**

131 Data from the NTS and MCS informed this grade, and similar to the 2014 Report Card, 47%-
132 51% of children actively commute to or from school, though only 2% of these children go by
133 bicycle.^{11,13} Approximately 55% of primary schools offered Bikeability cycle training in 2012,³¹
134 though according to a recent evaluation of the scheme, there was no evidence of increased
135 cycling frequency levels among children.³² Additional measures may be needed, including
136 changes to the built environment (e.g., segregated cycle lanes and traffic free routes), if we are to
137 improve both bicycle safety and cycling levels across England.^{33,34}

138 In terms of active transport to non-school destinations, general bike use is slightly better with
139 28% of 11 year olds reporting the use of their bike several times a week,¹¹ and 47% of 2-16 year
140 olds walk for 20 minutes or more, 3 or more times a week.¹⁹ However, boys are more likely to
141 travel on their own by bike (36% vs. 23%) and by foot (54% vs. 44%) than girls, according to the
142 MCS,¹¹ which likely reflects the higher level of independent mobility typically given to boys.³⁵
143 Due to the lack of improvement on this indicator, the consistently low levels of bike use, and the
144 lower proportion of girls making journeys on their own by active means, the panel decided to
145 drop the C grade to a C-. However, it must be noted that some children may use other forms of
146 active travel not considered here (e.g. scooters, roller blades, skate boards etc.) and some
147 journeys may be made using both passive and active means. An internationally agreed definition
148 and metric of active travel is necessary to facilitate comparisons across countries.

149 **Sedentary Behaviours: INC**

150 An INC grade was assigned to this indicator for a second year, because there are currently no UK
151 guidelines which specify a threshold for sedentary time that can be used as a benchmark.⁷
152 Furthermore, there is a lack of available data on children's engagement in sedentary behaviours
153 with the exception of recreational screen time, which shows that 62% of young people reported
154 watching TV and screen-based media for > 2 hours per day.⁸ However, past research has
155 focussed heavily on TV viewing alone but children and young people have access to a wide
156 range of screen-based entertainment,³⁶ thus future research is needed on the effects that this may
157 have on children's health. Data on other non-screen based sedentary behaviours are also
158 required, particularly since children who engage in high screen time may be more sedentary in
159 general.³⁷ In order for a grade to be assigned in future Report Cards, and to advance this area of
160 research, specific evidence-based guidelines for sedentary behaviours are needed in the UK.

161 Family and Peers: INC

162 For a second time, an INC grade was awarded to this indicator due to a lack of nationally
163 representative data on family and peer support for PA in England.⁷ Data from the YST shows
164 that 53% of parents are engaged in their child's extra-curricular PA and sport at school, though
165 only 8% of these parents are reported to be 'completely engaged' (2015 YST; unpublished
166 custom analysis). However, it is unclear what is meant by 'engaged' in terms of the type of
167 support provided by parents, thus these data were not used to inform a grade. Only one
168 benchmark, which examined the proportion of children doing sport/PA as a family could be
169 assigned a grade. This benchmark was given a D grade because 41% of young people do PA
170 with their family at least once a week.⁸

171 School: B+

172 Five benchmarks were assessed, including a new benchmark on the proportion of schools who
173 have a specialist teacher delivering curriculum Physical Education (PE). This new benchmark
174 contributed to the decline in the overall school grade from an A- to a B+ overall.
175 Data from the PE and Sport Survey³⁸ were used to inform the A- grade for school PE in the 2014
176 Report Card.⁷ This survey was discontinued from 2010, and PE is no longer monitored annually
177 across all schools in England.³⁹ However, data have been collected recently by the YST, which
178 was used to inform the grades for the majority of the school benchmarks. According to this
179 survey, 77% of schools offer at least 2 hours of PE per week at Key Stage 1 (ages 5-7); this rises
180 to 83% and 86% at Key Stages 2 (ages 7-11) and 3 (ages 11-14) respectively, but provision drops
181 to 58% at Key Stage 4 (ages 14-16) (2015 YST; unpublished custom analysis). In addition, >
182 97% of schools report offering extra-curricular PA and sport, and 85% of secondary and 97% of
183 primary schools report encouraging PA as part of the school day.¹⁴ As such, a B+ was assigned

184 for school PE, and an A grade was awarded to both the availability of additional opportunities
185 and the promotion of daily PA benchmarks. As 57% of schools reported having a specialist PE
186 teacher, with more secondary schools (86%) providing this than primary schools (44%) (2015
187 YST; unpublished custom analysis), a B- was awarded to the provision of a PE specialist
188 benchmark.

189 As for the provision of PA facilities at school, data from a report on spending the PE and Sport
190 Premium (£150 million ring-fenced funding provided to all primary schools in England*) was
191 used.⁴¹ This report shows that 46% of primary schools have access to outside courts, 64%-78%
192 have access to a multi-purpose school hall, swimming pool and playing field, and 100% have
193 access to a playground.⁴¹ It is a statutory requirement for schools to provide outdoor space for
194 PA, though this does not apply to pupil referral units (an establishment for those who are unable
195 to attend mainstream school),⁴² and according to a consultation by Sport England, approximately
196 3000 primary schools do not have adequate outdoor space for PA and sport.⁴³ Furthermore, the
197 benchmark specifies that facilities should be in 'good condition', but the only indication of the
198 quality of such facilities is that 47% of schools thought the quality and 45% thought the range of
199 their facilities had improved since the introduction of the PE and Sport Premium.⁴¹ Further, 30%
200 of young people say they would play more sport if their school had better facilities.²⁷ As such, it
201 is possible that some school facilities may need improvement and little is known about provision
202 across secondary schools. Taking this into account, the grade for this benchmark was reduced
203 from an A to a B+.

204 **Community and the Built Environment: B**

*This funding will be doubled from April 2018 as part of the new sugar tax.⁴⁰

205 The grade for this indicator has not changed and remains at a B.⁷ Four benchmarks were used to
206 measure this indicator, pertaining to access to and use of outdoor parks and spaces, satisfaction
207 with such spaces and perceptions of safety within the local neighbourhood.

208 According to data from the MCS, 93.4% of 11 year olds have a playground available to them
209 where they live, and 61.2% of 5 year olds are taken to a playground weekly.¹⁰ Other data show
210 that 70% of children visit the natural environment at least once a week.⁴⁴ Consequently, A and B
211 grades were awarded for access to and use of outdoor parks and spaces respectively. In terms of
212 satisfaction with these spaces, a C grade was assigned because 59% of park managers, and 50%
213 of park visitors, feel that their parks are in good condition.⁴⁵

214 It is promising that 72% of young people agreed that it is safe for children to play outdoors
215 during the day where they live according to the HBSC,⁸ and a higher proportion of parents
216 (86.4%),⁴⁶ and 11 year olds (89%)¹¹ report that their home area is safe, according to the MCS. A
217 B+ was awarded to this benchmark to place emphasis on the HBSC data, given that it is more
218 relevant to PA in particular, and the + was included to reflect the higher percentage reported in
219 the MCS. An area for consideration in future Report Cards is the perception of traffic safety and
220 the proportion of children who are allowed to leave the house to play outdoors/actively travel to
221 places unsupervised. This will provide a better indication of neighbourhood safety and whether
222 the spaces near to home are adequately suited to PA behaviours.

223 **Government Strategies and Investment: INC**

224 Akin to the 2014 Report Card, grading this indicator was difficult due to a lack of independent
225 evaluation of different strategies and policies that are currently in place.⁷ Thus, we do not know
226 how successful such policies are in terms of promoting PA participation among children and
227 youth. However, due to the lack of improvement across all grades in the 2016 Report Card, it

228 would seem unlikely that current policies and strategies are having a significant impact on a
229 large scale.

230 **Strengths and Limitations**

231 The 2016 Report Card has a number of strengths. First, it is the only review of its kind available
232 in England which includes an overall assessment of multiple PA behaviours and varying levels
233 of influence among children and youth. Second, it is a useful resource which can be used by a
234 number of people including public health practitioners, teachers, parents and others that have an
235 influence on children's PA levels. It can also be used to influence future policy directions, serve
236 as a tool for developing future research ideas, and guide research funding priorities.⁷ Further, a
237 number of experts in the field were involved in the grade assignment.

238 Despite these strengths, some limitations should be highlighted. For example, there is a lack of
239 available data to measure some indicators which was also the case for England's 2014 Report
240 Card.⁷ Although the best available evidence was used to inform the grades, there is a need for
241 continuous monitoring of children's PA participation using objective measures on a wide age
242 range of participants (e.g., from 2-18 years). In addition, there are still no UK specific guidelines
243 for sedentary behaviour. Such guidelines are needed if we are to grade this indicator in future,
244 and a systematic surveillance tool that captures nationally representative data akin with all
245 benchmarks is needed.

246

247 **Conclusion**

248 In conclusion, the grades reflect that PA levels are low among children and youth across
249 England. There has been no improvement since the last edition of the Report Card, with many
250 grades having declined, and a lack of available data to measure some indicators. Despite this,

251 there is still sufficient provision of facilities and PA programmes for children and youth,
252 reflected in the B+ and B grades awarded to the school and community indicators. Thus, further
253 work is needed to understand how to promote the use of such facilities and programmes.

254

255 **Acknowledgements**

256 The authors thank Professor Stuart Biddle (Victoria University) for his contribution to the 2016
257 Report Card, pertaining to the Sedentary Behaviour indicator.

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400 **Tables**

401

402 Table 1. Grades According to Physical Activity Indicators assessed in England's 2016 Report Card on Physical Activity for Children
403 and Youth

Indicator	Benchmark(s)	Grades
Overall Physical Activity Levels	% of children/youth achieving \geq 60 minutes of MVPA per day	D-
Organized Sport Participation	% of children/youth participating in organized sport/PA programmes out of school time	D
Active Play	% of children/youth engaging in daily unstructured/unorganized active play	INC
Active Transportation	% of children/youth who use active transport to get to and from places (school, park etc.)	C-
Sedentary Behaviours	% of children/youth meeting sedentary behaviour guidelines	INC
Family and Peers	% of parents who support their children's PA and sport opportunities (e.g., volunteering, paying membership fees, driving etc.)	INC
	% of parents who do sport/PA with their children	
	% of children/youth who have friends that support them to be physically active	

School	% of schools allocating at least 120 minutes of curriculum PE per week % of schools with specialist PE teachers % of schools that offer additional PA opportunities (excluding PE) % of schools that promote PA as part of the school day % of pupils who have access to PA facilities at school (e.g., sports hall, outdoor playground) that are in good condition	B+
Community and the Built Environment	% of children/youth with access to outdoor parks and spaces % of children/youth who use outdoor parks and spaces % of children/youth who are satisfied with their local outdoor parks and spaces % of children/parents who perceive their neighbourhood to be safe	B
Government Strategies and Investment	Evidence of allocated funds and PA promotion strategies/initiatives for all children and youth	INC

404

405 *Note.* The grade boundaries for each indicator are: *A* is 81% to 100%; *B* is 61% to 80%; *C* is 41% to 60%, *D* is 21% to 40%; *F* is 0%

406 to 20%; *INC* is Incomplete data.

407 MVPA, moderate-to-vigorous intensity physical activity; PA, physical activity; PE, physical education.

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409 **Figures**

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411 Figure 1: Front Cover of England's 2016 Physical Activity Report Card



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