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23 Results from the 2016 Active Healthy Kids Belgium Report Card on Physical Activity for Children

24 and Youth

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**33 Abstract**

34 Background: This 2016 Belgium Report Card on Physical Activity for Children and Youth is the first  
35 systematic evaluation of the level of physical activity behaviors, other health-related behaviors,  
36 and health outcomes, and influences thereon, using the Active Healthy Kids Canada grading  
37 framework.

38 Methods: A research working group (RWG) consisting of physical activity experts from both  
39 Flanders and Wallonia collaborated to determine the indicators to be graded, data sources to be  
40 used, and factors to be taken into account during the grading process. Grades were finalized after  
41 consensus was reached among the RWG and two stakeholder groups consisting of academic and  
42 policy experts in the fields of physical activity, sedentary behaviors, and dietary behaviors.

43 Results: Eleven indicators were selected and assigned the following grades: overall physical  
44 activity (F+), organized sport participation (C-), active play (C+), active transportation (C-),  
45 sedentary behaviors (D-), weight status (D), school (B-), and government strategies and  
46 investment (C+). Inconclusive grades were assigned to dietary behaviors, family and peers, and  
47 community and the built environment due to a lack of nationally representative data.

48 Conclusions: Despite moderately positive social and environmental influences, physical activity  
49 levels of Belgian children and youth are low while levels of sedentary behaviors are high.

## 50 **Introduction**

51 Despite the many health benefits associated with physical activity throughout childhood,<sup>1,2</sup> a  
52 large portion of children and adolescents in Belgium does not engage in sufficient levels of  
53 physical activity to meet current recommendations.<sup>3-6</sup> Concurrently with these low estimates for  
54 overall physical activity levels, high levels of screen time have been reported for Belgian children  
55 and youth.<sup>4,5,7,8</sup> Together, these behaviors accumulate to an unhealthy lifestyle that seems to  
56 have its origin in early childhood.<sup>9</sup>

57 In Belgium, surveillance of physical activity, other health-related behaviors, and health-related  
58 outcomes in a representative sample of Belgian children and youth is being performed at the  
59 national level by the Scientific Institute of Public Health (WIV-ISP).<sup>10,11</sup> In contrast, surveillance of  
60 individual, social, and environmental influences on these behaviors and health outcomes is  
61 mainly performed on a regional level and by different organizations. Following the examples of  
62 other international report cards, in particular the Canadian Physical Activity Report Card,<sup>12</sup> the  
63 Physical Activity Report Card is a tool that will encourage advocacy and systematic evaluation of  
64 physical activity and its influences with the ultimate aim of improving physical activity levels of  
65 Belgian children and youth.

66 The purpose of this manuscript is to summarize the process by which the first Belgian Report  
67 Card on Physical Activity for Children and Youth was developed and to summarize its main results.  
68 In Belgium, health policy is organized by the federal authority as well as by the different  
69 communities. While regulations concerning the practice of medical and paramedical professions  
70 are federal responsibilities, primary and preventive health care and regulations concerning sport  
71 and education are community responsibilities. As a consequence, different policies and strategies

72 to promote a physically active and healthy lifestyle within the framework of health promotion  
73 and disease prevention can be found in Flanders and Wallonia. Therefore, differences in health-  
74 related behaviors and health-related behaviors between regions will be highlighted throughout  
75 this manuscript. Data used for this Report Card come from national and regional surveys (2010-  
76 2014) and are synthesized and graded in a systematic manner according to benchmark criteria  
77 formulated by Active Healthy Kids Canada.<sup>12</sup>

78

## 79 **Methods**

80 A research working group (RWG) was established consisting of six researchers from KU Leuven,  
81 Ghent University, and the University of Liege, covering both Flanders (i.e. Northern Dutch-  
82 speaking part of Belgium) and Wallonia (i.e. Southern French-speaking part of Belgium). With the  
83 support of WIV-ISP, the first author prepared a synthesis of the data recently collected in the  
84 Food Consumption Survey (FCS), the main data source for this manuscript (see below for more  
85 information). Subsequently, the RWG was responsible for the selection of indicators,  
86 identification of additional relevant data sources, synthesis of data, and assignment of grades to  
87 each of the selected indicators. Two separate stakeholder groups were formed, one for Flanders  
88 and one for Wallonia, consisting of experts from research, education, policy, and practice in the  
89 field of physical activity, sport, sedentary behavior, and dietary behavior. Members of the RWG  
90 prepared preliminary grades which were subsequently discussed in separate meetings with the  
91 stakeholders group for Flanders and the stakeholders group for Wallonia. Grades were finalized  
92 after consensus was reached among the RWG in a joint meeting and were endorsed by both  
93 stakeholder groups.

94 This inaugural 2016 Active Healthy Kids Belgium Report Card on Physical Activity for Children and  
95 Youth assessed 11 indicators, including nine core indicators and two additional indicators: 1)  
96 overall physical activity, 2) organized sport participation, 3) active play, 4) active transportation,  
97 5) sedentary behaviors, 6) dietary behaviors, 7) weight status, 8) family and peers, 9) school, 10)  
98 community and the built environment, and 11) government strategies and investments.

99 Available data(sources) were evaluated according to representativeness of the data (including  
100 sampling procedure and sample size), quality of the evidence (e.g. accelerometer derived  
101 physical activity levels versus self-reported or parent-reported levels of physical activity), year of  
102 data collection, age (range) of the study population, and presentation of results for specific  
103 subgroups (e.g. girls versus boys). The Belgian FCS 2014-2015 (n=1063 for children; n=964 for  
104 adolescents) conducted by WIV-ISP was selected as primary data source given its assessment of  
105 a wide range of health-related behaviors and health-related outcomes and national coverage.<sup>13</sup>

106 Furthermore, the FCS collects objectively measured data on physical activity (i.e. by  
107 accelerometry) and anthropometric characteristics. Alternative data sources were consulted in  
108 case information on selected indicators was not available in the FCS, including the 2013/2014  
109 HBSC study (n=9566 for Flanders; n=14180 for Wallonia),<sup>14</sup> the ToyBox study (n=1327),<sup>15</sup> the  
110 ENERGY study (n=1003 for adolescents; n=763 for parents),<sup>16</sup> the 2012 Indicator Survey (n=1006  
111 for primary schools; n=451 for secondary schools),<sup>17</sup> a regional survey on the importance given  
112 to physical activity promotion in secondary schools of French-speaking Belgium performed by the  
113 University of Liege (n=51 secondary schools),<sup>18</sup> and a longitudinal study on the environment and  
114 physical activity of Flemish adolescents conducted by Ghent University (n=420 adolescents at  
115 follow-up).<sup>19</sup>

116 Following selection of the indicators, data sources, and appropriate items within those data  
117 sources, indicators were graded using the grading framework formulated by Active Healthy Kids  
118 Canada (A = 81%–100%; B = 61%–80%; C = 41%–60%; D = 21%–40%; F = 0%–20%; INC  
119 [inconclusive]= not enough valid/representative data available for grading).<sup>12</sup> For each of the  
120 overall indicators, multiple sub indicators (e.g. for different age groups) were graded according  
121 to this framework and an overall grade was established based on consensus among members of  
122 the RWG and endorsement from the stakeholder groups. In addition to an overall grade, an  
123 indicator could be assigned a plus sign ('+') or minus sign ('-') based on the presence or absence,  
124 respectively, of substantial inequalities (i.e.  $\geq 5\%$  difference) according to age, region (Flanders  
125 vs. Wallonia), gender, or socioeconomic status (SES) as indicated by parental educational level.  
126 In case previous research was available, a plus sign or minus sign could also be added to the grade  
127 based on the presence of a positive or negative trend.

128

## 129 **Results**

130 The 2016 Belgium Report Card is the first systematic assessment of physical activity for Belgian  
131 children and youth using the Active Healthy Kids Canada grading framework. Table 1 present the  
132 11 indicators selected and graded by the RWG and validated by the stakeholders groups. The  
133 front cover of the Report Card is illustrated in Figure 1.

134

## 135 **Discussion**

136 The present manuscript presents the results from the first Active Healthy Kids Belgium Report  
137 Card on Physical Activity for Children and Youth. In the following sections, the grading process  
138 for each of the indicators is discussed.

139

#### 140 Overall physical activity

141 Accelerometer data from the FCS show that only a minority of 6-to 9-year old children (7%) and  
142 10- to 17-year-old adolescents (2%)<sup>10</sup> meet the international recommendation of at least 60  
143 minutes of daily moderate to vigorous physical activity (MVPA).<sup>20-23</sup> In contrast, the majority of  
144 3- to 5-year-old children (96%) meet the recommendation of at least 180 minutes of total physical  
145 activity on a daily basis.<sup>24,25</sup> It should be noted here that the recommendations for the different  
146 age groups are inherently different, with the latter referring to total physical activity, i.e. light,  
147 moderate, and vigorous physical activity, instead of MVPA. No remarkable differences in overall  
148 physical activity levels were observed according to region, gender, or SES. Based on these data,  
149 the RWG decided to assign this indicator an 'F+', with the plus sign representing the positive  
150 observation in preschool children.

151

#### 152 Organized sport participation

153 Self-reported data from the FCS show that 56% of 3- to 9-year-old children are member of a sport  
154 club and that 75% of 10- to 17-year-old adolescents actively participate in one or more sports  
155 during their leisure-time.<sup>10</sup> Furthermore, 45% of adolescents that are able to participate in  
156 extracurricular sport or physical activities report that they actually participate in these activities.  
157 Differences according to region (in favor of Flanders for preschool children and of Wallonia for



158 adolescents), gender (in favor of boys), and especially SES (in favor of children and adolescents  
159 of high educated parents) were also found. Based on this information, the organized sport  
160 participation indicator was assigned a 'C-'.

161

#### 162 Active play

163 According to self-reported FCS data, around 80% of 3- to 9-year-old children engage in active play  
164 during weekdays and weekend days.<sup>10</sup> Remarkably lower levels of active play were observed for  
165 adolescents; 26% and 29% of 10- to 17-year-olds report that they participate in sports/play as  
166 main activity during recess at school and lunch break at school, respectively. It should be noted  
167 here that differences may be due to differences in the context of active play between children  
168 (whole day) and adolescents (during recess). Small differences in levels of active play were found  
169 for region (in favor of Flanders), gender (in favor of adolescent boys), and SES (in favor of children  
170 and adolescents of mid and high educated parents). Furthermore, estimates of active play on  
171 weekdays and weekend days for children were higher for spring (88% and 87%) and summer  
172 (90% and 85%) compared with winter (69% and 75%). Because the grades for each of the sub  
173 indicators varied, the RWG assigned this indicator an average 'C+', with the plus sign representing  
174 the positive observation in younger children.

175

#### 176 Active transportation

177 FCS data show that 49% of 3- to 5-year old children and 47% of 6- to 9-year-old children use active  
178 transportation, defined as walking or cycling, to travel to and from school.<sup>10</sup> A somewhat lower  
179 proportion is observed for adolescents, with 40% of adolescents usually using active

180 transportation (i.e. walking, cycling, and rollerblading) to travel to and from school. Substantial  
181 differences were observed for SES (in favor of children of low educated parents and of  
182 adolescents with high educated parents) and, especially, region (in favor of Flanders). Based on  
183 these observations, this indicator was graded a 'C-'.

184

#### 185 Sedentary behaviors

186 According to FCS data, 65% of children aged 3-5 years meet the international recommendation  
187 of less than 1 hour of screen time per day <sup>24,26</sup> on a weekday, while only 25% of children meet  
188 this guideline on a weekend day.<sup>10</sup> With respect to older children (6-9 years old), FCS data show  
189 that 89% and 46% meet the recommendation of less than 2 hours of screen time per day for older  
190 children and youth <sup>20,21,27</sup> on weekdays and weekend days, respectively. Results for adolescents  
191 (10-17 years) were the least favorable with 45% and 16% meeting this recommendation on  
192 weekdays and weekend days. Large differences are reported for gender (in favor of girls), region  
193 (mostly in favor of Wallonia), and especially SES (in favor of children and adolescents of mid and  
194 high educated parents). Based on these varying sub indicators, this indicator was assigned an  
195 average 'D-', with the minus sign representing large inequalities.

196

#### 197 Dietary behaviors

198 Based on their public health value and previous research showing an association between a  
199 healthy diet pattern and physical activity in children,<sup>28</sup> the RWG decided to select the following  
200 sub indicators to grade this overall indicator: consumption of fruit, consumption of sugar-  
201 sweetened beverages (SSBs), and daily breakfast consumption. Data sources for this indicator

202 included the FCS 2014-2015 (breakfast consumption),<sup>11</sup> the 2013/2104 HBSC study (fruit and SSBs  
203 for adolescents),<sup>14</sup> and the ToyBox study (fruit and SSBs for preschool children).<sup>15</sup> While most  
204 children and adolescents consume breakfast on a daily basis (85% and 65% for Belgian children  
205 and adolescents, respectively),<sup>11</sup> only few children and adolescents never consumed SSBs, with  
206 estimates ranging from 3% (Flemish preschool children)<sup>15</sup> to 12% (Wallonian adolescents).<sup>5</sup>  
207 Taking into account these varying percentages for different sub indicators, as well as the lack of  
208 nationally representative information for some of these, the RWG assigned this indicator an 'INC'.

209

#### 210 Weight status

211 Objectively measured data from the FCS show that 77% of 3- to 5-year-old children, 75% of 6- to  
212 9-year-old children and 72% of 10- to 17-year-old adolescents have a normal weight status.<sup>11</sup> The  
213 prevalence of overweight including obesity is 14% for 3- to 5-year-old children, 17% for 6- to 9-  
214 year-old children, and 18% for 10- to 17-year-old adolescents. Few differences in weight status  
215 were observed for region, age group, gender, or SES, with the exception of a substantial SES  
216 difference in adolescents (in favor of adolescents of high educated parents). Because this  
217 indicator is a health outcome rather than a health behavior, and because the prevalence of  
218 overweight among Belgian children and youth is substantial, grading with the Active Healthy Kids  
219 Canada framework is complicated. Based on consensus among RWG members and supported by  
220 the stakeholder groups, the weight status indicator was assigned a 'D'.

221

#### 222 Family and peers

223 For Flanders, data from the ToyBox study in preschoolers<sup>15</sup> and from the ENERGY study in  
224 adolescents<sup>16</sup> show that around 84% of parents and peers provide substantial encouragement to  
225 children and youth to participate in sport/physical activities. In contrast, only a minority of  
226 parents of preschoolers and adolescents meet the recommendation of at least 30 minutes of  
227 MVPA daily<sup>29</sup> themselves (10% and 26%, respectively). Because similar information was missing  
228 for Wallonia and therefore no nationally representative information was available, this indicator  
229 was assigned an 'INC'.

230

231 School

232 Data from the FCS show that almost all adolescents in Flanders (94%) and Wallonia (94%) receive  
233 at least 2 hours of physical education (PE) per week at school.<sup>10</sup> Furthermore, initiatives to  
234 develop and enhance links between PE and other opportunities to be physically active in the  
235 wider community have received more attention during the last few years.<sup>30</sup> A three-yearly survey  
236 in Flemish primary schools and secondary schools conducted in 2012 yielded scores of 57/100  
237 and 52/100, respectively, for overall school policy and programs on physical activity.<sup>17</sup> These  
238 overall scores represent school performance in three domains, including physical activity  
239 education in the regular school curriculum, physical activity regulations, and physical activity  
240 availabilities within the school. A negative trend in both overall scores was observed when  
241 compared to a previous survey in 2009. A similar survey in the French-speaking community of  
242 Belgium showed that 32% of secondary schools gave a score of  $\geq 50/100$  when they rated the  
243 importance given to physical activity promotion in the school setting.<sup>18</sup> Because the grades of the  
244 sub indicators varied, the RWG agreed on an average 'B-' grade. The minus sign was added to the

245 overall grade to indicate that the majority of sub indicators, with the exception of school PE, were  
246 graded a C or D.

247

#### 248 Community and the built environment

249 In Flanders, 61% and 34% of 13- to 14-year-old adolescents report that in their neighborhood  
250 most of the streets have pedestrian paths and cycle tracks, respectively.<sup>19</sup> Furthermore, 91% and  
251 90% of adolescents *do not* report that in their neighborhood there is so much traffic in nearby  
252 streets that it is dangerous to walk or cycle. Finally, 27% of adolescents report that it is safe to  
253 play on the street in their neighborhood. Due to a lack of information on built environmental  
254 factors outside the direct neighborhood and lack of data for Wallonia, this indicator was graded  
255 with an 'INC'.

256

#### 257 Government strategies and investment

258 In Flanders, the Flemish Agency for Care and Health is an internally autonomous agency within  
259 the Flemish authorities and creates qualitative conditions for promoting, monitoring, sustaining  
260 or restoring the welfare and health levels of the current and future Flemish population. The  
261 Flemish Action plan for nutrition and physical activity 2009-2015 was established in 2008,  
262 containing health targets with the aim of motivating the population in Flanders to engage in  
263 physical activity and healthy nutrition. It also includes information on strategies, priorities and  
264 actions to achieve the changes in health behaviors and health. One of the strategies is to provide  
265 health care professionals with the correct information on nutrition and physical activity and  
266 therefore a Flemish consensus text with recommendations on nutrition, physical activity and

267 sedentary behavior was established. Another strategy is the implementation of several projects  
268 in Flanders promoting healthy nutrition and physical activity, many of which are based in the  
269 school setting. In Wallonia, the Parliament of the French-speaking community in Belgium passed  
270 the Political Declaration of the French-speaking community for 2014-2019. This Political  
271 Declaration includes a dedicated Sports for All policy which aims to use government strategy to  
272 encourage uptake of physical activity for all, which may include coupling sports, health, education  
273 and social integration. School sport and biking to school initiatives are supported in this  
274 document. Nonetheless, this Political Declaration still needs to be translated in operational  
275 strategies and health targets. National legislation dictates that children and youth in primary and  
276 secondary education should receive a mandatory minimum of two hours PE per week.  
277 Furthermore, a soft drink tax has been established in Belgium since the beginning of 2016. Based  
278 on this information, this indicator was assigned a 'C+'.

279

### 280 **Strengths and Limitations**

281 The results of this inaugural Physical Activity Report Card for Belgium should be interpreted in  
282 light of some strengths and limitations. A first important strength was that this Report Card was  
283 developed by a RWG and two stakeholder groups with national representation from both the  
284 academic and non-academic (e.g. policy) sector. Furthermore, stakeholders were carefully  
285 selected based on their expertise in different domains of physical activity and public health,  
286 including physical activity behavior in general, physical activity behavior in the school context and  
287 sport club context, nutrition experts, and other related areas. Second, our main data source, the  
288 FCS 2014-2015, provided us with nationally representative, recently collected, standardized data

289 from across the country.<sup>13</sup> Moreover, our grade on overall levels of physical activity is based on  
290 objectively measured physical activity as derived by accelerometry, generally considered the  
291 'gold-standard' for free-living physical activity measurement.<sup>31</sup> A limitation is that inconclusive  
292 grades were assigned to the indicators dietary behaviors, family and peers, and community and  
293 the built environment. This was mainly due to a lack of nationally representative data, indicating  
294 a need for more systematic surveillance of influences on physical activity and related behaviors  
295 in children and youth across the whole of Belgium, and Wallonia in particular.

296

### 297 **Conclusion**

298 The 2016 Active Healthy Kids Belgium Report Card on Physical Activity for Children and Youth  
299 shows that levels of overall physical activity are low and levels of sedentary behaviors (i.e. screen  
300 time) are high, despite moderately positive influences from the social, political, and built  
301 environment. Furthermore, despite moderately positive scores for specific physical activity  
302 behaviors, i.e. organized sport participation, active play, and active transportation, children and  
303 youth are not meeting current physical activity recommendations. Evidence-based strategies are  
304 needed to make full use of the policies and projects currently in place and to translate healthy  
305 behaviors into sufficient levels of health promoting physical activity.

306

### 307 **Institution Where Work Originated**

308 This work originated at the KU Leuven, Ghent University, and University of Liege.

309

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317 Foundation (SVS), Physical Education Association Flanders (BVLO), and for Wallonia: Université  
318 Libre de Bruxelles, Université Catholique de Louvain, l'Université de Lorraine, Walloon Sport  
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320 Scientific Research of Wallonia.

321



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400 **Tables**

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402 Table 1. Grades According to Physical Activity Indicator in the 2016 Belgium Report Card on

403 Physical Activity for Children and Youth

Indicator	Grades
Overall Physical Activity Levels	F+
Organized Sport Participation	C-
Active Play	C+
Active Transportation	C-
Sedentary Behaviors	D-
Dietary Behaviors	INC
Weight Status	D
Family and Peers	INC
School	B-
Community and the Built Environment	INC
Government strategies and investments	C+

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405 *Note.* The grade for each indicator is based on the percentage of children and youth meeting a

406 defined benchmark: *A* is 81% to 100%; *B* is 61% to 80%; *C* is 41% to 60%, *D* is 21% to 40%; *F* is 0%

407 to 20%; *INC* is incomplete data.

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410 **Figures**

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413 FRONT COVER WILL BE SEND TO EDITORIAL OFFICE ASAP

414

415 Figure 1: Front Cover of the 2016 Belgium Report Card on Physical Activity for Children and Youth

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