Table S1 Frequencies of sport/exercise club attendance and play outside and inside the home and mean activity score by gender in the observed data

		Boys N (%)	Girls N (%)	Chi-squared p-value for association
Frequency child attends sport/exercise club at school	Never 1-2 days/week 3-4 days/week 5 days/week	144 (25.9) 235 (42.3) 90 (16.2) 86 (15.5)	194 (29.4) 318 (48.2) 106 (16.1) 42 (6.4)	<0.001
Frequency child attends sport/exercise club outside of school	Never 1-2 days/week 3-4 days/week 5 days/week	85 (15.3) 289 (52.1) 121 (21.8) 60 (10.8)	165 (25.0) 321 (48.7) 132 (20.0) 41 (6.2)	<0.001
Frequency child plays with friends/family outside near home	Never 1-2 days/week 3-4 days/week 5 days/week	36 (6.6) 187 (34.1) 142 (25.9) 184 (33.5)	40 (6.1) 219 (33.4) 207 (31.6) 190 (29.0)	0.14
Frequency child plays with friends/family in home/garden	Never 1-2 days/week 3-4 days/week 5 days/week	53 (9.7) 184 (33.7) 142 (26.0) 167 (30.6)	62 (9.5) 230 (35.2) 179 (27.4) 182 (27.9)	0.76

	Boys		Girls		T-test p-value for gender difference
	N	Mean (SD)	N	Mean (SD)	
Activity frequency score	542	6.15 (2.42)	651	5.65 (2.16)	<0.001

Table S2 Child characteristics by frequencies of sport/exercise club attendance and play outside and inside the home and activity score in the observed data

		Age (years)		BMI z score		IMD score	
		Mean (SD)	N	Mean (SD)	N	Mean (SD)	N
Frequency child attends sport/exercise club at school	Never	9.03 (0.38)	1215	0.43 (1.14)	1202	17.30 (15.04)	1197
	1-2 days/week	9.05 (0.43)		0.35 (1.05)		15.54 (14.02)	
	3-4 days/week	9.00 (0.45)		0.29 (1.02)		14.15 (11.07)	
	5 days/week	8.99 (0.39)		0.27 (1.13)		16.66 (15.10)	
P-value for difference between categories[*]		0.31		0.36		0.07	
Frequency child attends sport/exercise club outside of school	Never	9.01 (0.40)	1214	0.47 (1.07)	1201	20.03 (16.06)	1196
	1-2 days/week	9.01 (0.43)		0.37 (1.09)		16.02 (14.12)	
	3-4 days/week	9.05 (0.41)		0.23 (1.07)		12.30 (10.25)	
	5 days/week	9.12 (0.39)		0.30 (1.06)		14.26 (13.64)	
P-value for difference between categories[*]		0.05		0.09		<0.001	
Frequency child plays with friends/family outside near home	Never	8.96 (0.47)	1205	0.48 (1.24)	1192	17.60 (16.02)	1187
	1-2 days/week	9.01 (0.42)		0.31 (1.06)		15.20 (13.83)	
	3-4 days/week	9.05 (0.41)		0.39 (1.07)		14.66 (12.48)	
	5 days/week	9.05 (0.40)		0.33 (1.08)		17.66 (15.08)	
P-value for difference between categories[*]		0.23		0.58		0.01	
Frequency child plays with friends/family in home/garden	Never	8.97 (0.38)	1199	0.50 (1.11)	1186	18.54 (15.94)	1181
	1-2 days/week	9.02 (0.45)		0.29 (1.09)		15.85 (13.95)	
	3-4 days/week	9.06 (0.41)		0.40 (1.07)		14.24 (12.79)	
	5 days/week	9.03 (0.39)		0.32 (1.07)		16.85 (14.55)	
P-value for difference between categories[*]		0.31		0.23		0.02	
		Correlation	P-value	Correlation	P-value	Correlation	P-value
Activity frequency score		0.04	0.13	-0.05	0.07	-0.07	0.02

Table S3 Pairwise comparisons of children's activity attendance frequencies in the multiple imputation data (N=1223)[*]

		Frequency child attends sport/exercise club at school (%)		Frequency child attends sport/exercise club outside of school (%)		Frequency child plays with friends/family outside near home (%)		Frequency child plays with friends/family in home/garden (%)	
		Up to 2 days/week	3 or more days/week	Up to 2 days/week	3 or more days/week	Up to 2 days/week	3 or more days/week	Up to 2 days/week	3 or more days/week
Frequency child attends sport/exercise club at school	Up to 2 days/week			76.3	23.7	42.7	57.3	47.3	52.7
	3 or more days/week			55.8	44.2	33.2	66.8	36.0	64.0
P for association				<0.001		0.003		0.001	
Frequency child attends sport/exercise club outside of school	Up to 2 days/week	79.0	21.0			40.2	59.8	46.8	53.2
	3 or more days/week	59.7	40.3			40.0	60.0	38.2	61.8
P for association		<0.001				0.94		0.006	
Frequency child plays with friends/family outside near home	Up to 2 days/week	78.0	22.0	71.0	29.0			65.1	34.9
	3 or more days/week	70.3	29.7	70.8	29.2			30.3	69.7
P for association		0.003		0.94				<0.001	
Frequency child plays with friends/family in home/garden	Up to 2 days/week	78.3	21.7	74.9	25.1	59.0	41.0		
	3 or more days/week	69.4	30.6	67.6	32.4	25.2	74.8		
P for association		0.001		0.006		<0.001			
Total		**73.4**	**26.6**	**70.8**	**29.2**	**40.2**	**59.8**	**44.3**	**55.7**

[*] Percentages presented are the proportions of children in each row that belong to each of the categories of child activity variables listed along the top of the table.

Table S4 Mean difference in the children's average sedentary minutes per day associated with different activities for those with complete data (N=987)*

Exposure		Sedentary time (minutes/day): mean difference (95% confidence interval)						P for gender interaction
		All (N=987)		Boys (N=439)		Girls (N=548)		
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
Frequency child attends sport/exercise club at school	Never (ref)	0	0	0	0	0	0	0.45
	1-2 days/week	-0.29 (-21.3, 20.7)	0.0 (-21.2, 21.3)	14.7 (-10.1, 39.5)	15.9 (-9.2, 41.0)	-11.4 (-39.7, 16.8)	-11.9 (-41.1, 17.3)	
	3-4 days/week	-26.3 (-40.8, -11.8)	-24.1 (-37.8, -10.4)	-13.8 (-31.5, 4.0)	-9.9 (-29.3, 9.4)	-36.0 (-59.5, -12.4)	-35.4 (-59.0, -11.7)	
	5 days/week	-16.0 (-35.3, 3.3)	-16.1 (-34.4, 2.3)	-7.1 (-29.7, 15.4)	-3.1 (-26.9, 20.6)	-22.0 (-54.6, 10.7)	-29.8 (-69.2, 9.66)	
P for trend		0.01	0.009	0.19	0.40	0.02	0.02	
Frequency child attends sport/exercise club outside of school	Never (ref)	0	0	0	0	0	0	0.73
	1-2 days/week	16.1 (-7.5, 39.7)	20.0 (-7.0, 47.0)	24.6 (-3.4, 52.7)	31.2 (0.6, 61.8)	10.8 (-19.3, 41.0)	12.9 (-20.0, 45.9)	
	3-4 days/week	-6.6 (-23.2, 10.1)	0.1 (-19.6, 19.8)	-3.2 (-28.8, 22.3)	5.6 (-17.7, 28.8)	-7.6 (-26.3, 11.1)	-2.0 (-26.7, 22.6)	
	5 days/week	-18.4 (-36.5, -0.2)	-13.8 (-33.8, 6.2)	-13.0 (-36.3, 10.4)	-5.9 (-28.8, 16.9)	-20.8 (-46.0, 4.3)	-18.2 (-46.4, 10.0)	
P for trend		0.009	0.05	0.02	0.03	0.08	0.28	
Frequency child plays with friends/family outside near home	Never (ref)	0	0	0	0	0	0	0.68
	1-2 days/week	4.5 (-26.7, 35.7)	6.0 (-27.5, 39.5)	16.3 (-13.4, 45.9)	20.2 (-10.1, 50.4)	-5.7 (-55.7, 44.3)	-7.1 (-59.0, 44.9)	
	3-4 days/week	-2.5 (-30.1, 25.0)	-0.6 (-31.6, 30.3)	8.3 (-23.1, 39.7)	13.0 (-19.4, 45.4)	-11.9 (-68.1, 44.3)	-13.2 (-71.3, 44.9)	
	5 days/week	-21.6 (-49.0, 5.7)	-21.9 (-50.4, 6.6)	-9.4 (-35.4, 16.6)	-6.4 (-32.8, 20.0)	-32.3 (-78.9, 14.2)	-36.4 (-86.0, 13.1)	
P for trend		<0.001	<0.001	0.08	0.08	0.009	0.01	
Frequency child plays with friends/family in home/garden	Never (ref)	0	0	0	0	0	0	0.86
	1-2 days/week	18.2 (-12.4, 48.8)	18.8 (-12.4, 50.0)	19.2 (-13.8, 52.2)	19.5 (-13.7, 52.8)	17.2 (-25.4, 59.9)	17.6 (-25.4, 60.6)	
	3-4 days/week	-4.5 (-27.3, 18.2)	-1.9 (-26.7, 22.9)	2.8 (-16.3, 21.9)	4.6 (-15.7, 25.0)	-10.1 (-47.3, 27.0)	-7.5 (-47.1, 32.1)	
	5 days/week	3.8 (-24.6, 32.2)	3.6 (-24.6, 31.8)	10.8 (-27.1, 48.8)	11.6 (-27.0, 50.2)	-2.2 (-43.0, 38.6)	-3.5 (-45.3, 38.3)	
P for trend		0.24	0.22	0.85	0.89	0.25	0.24	
Activity score (per unit)		-4.9 (-7.2, -2.7)	-4.7 (-6.9, -2.4)	-3.5 (-6.6, -0.4)	-2.9 (-6.0, 0.2)	-6.3 (-10.7, -2.0)	-6.6 (-11.2, -1.9)	0.28

* Model 1 is adjusted for age and gender; Model 2 is additionally adjusted for BMI and IMD score

Table S5 Mean difference in the children's average MVPA minutes per day associated with different activities for those with complete data (N=987)[*]

Exposure		Moderate-to-vigorous physical activity (minutes/day): mean difference (95% confidence interval)						P for gender interaction
		All (N=987)		Boys (N=439)		Girls (N=548)		
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
Frequency child attends sport/exercise club at school	Never (ref)	0	0	0	0	0	0	0.64
	1-2 days/week	3.2	3.1	3.3	2.7	3.1	3.1	
		(-0.4, 6.8)	(-0.5, 6.6)	(-3.3, 9.8)	(-3.7, 9.2)	(-0.5, 6.8)	(-0.6, 6.8)	
	3-4 days/week	6.7	6.4	8.0	7.3	5.7	5.6	
		(1.7, 11.8)	(1.4, 11.4)	(1.0, 15.1)	(0.1, 14.4)	(0.6, 10.7)	(0.5, 10.7)	
	5 days/week	5.3	5.1	6.6	5.8	3.2	3.1	
		(-1.3, 11.9)	(-1.5, 11.8)	(-1.4, 14.6)	(-2.2, 13.8)	(-5.0, 11.5)	(-5.5, 11.6)	
P for trend		0.02	0.03	0.02	0.05	0.08	0.10	
Frequency child attends sport/exercise club outside of school	Never (ref)	0	0	0	0	0	0	0.53
	1-2 days/week	1.8	1.5	4.3	3.6	0.4	0.4	
		(-1.9, 5.5)	(-2.4, 5.4)	(-3.2, 11.9)	(-4.4, 11.7)	(-3.5, 4.3)	(-3.5, 4.4)	
	3-4 days/week	7.3	6.7	10.5	9.0	5.3	5.5	
		(3.0, 11.5)	(2.4, 11.0)	(2.8, 18.2)	(1.4, 16.6)	(0.6, 10.0)	(0.9, 10.0)	
	5 days/week	10.5	10.1	14.3	13.4	7.3	7.3	
		(4.6, 16.5)	(3.9, 16.2)	(6.3, 22.3)	(4.8, 22.0)	(-0.8, 15.3)	(-0.6, 15.2)	
P for trend		<0.001	<0.001	<0.001	<0.001	0.01	0.008	
Frequency child plays with friends/family outside near home	Never (ref)	0	0	0	0	0	0	0.32
	1-2 days/week	0.7	0.4	1.2	0.5	0.4	0.3	
		(-4.1, 5.5)	(-4.3, 5.0)	(-7.4, 9.7)	(-8.1, 9.1)	(-6.0, 6.9)	(-6.3, 6.9)	
	3-4 days/week	5.2	4.9	6.7	6.0	4.0	3.9	
		(-0.8, 11.2)	(-1.0, 10.7)	(-3.5, 16.9)	(-4.0, 15.9)	(-3.6, 11.7)	(-3.8, 11.7)	
	5 days/week	9.9	9.7	13.8	13.3	6.5	6.4	
		(4.4, 15.4)	(4.2, 15.1)	(4.6, 23.0)	(4.0, 22.5)	(-0.5, 13.5)	(-0.7, 13.6)	
P for trend		<0.001	<0.001	<0.001	<0.001	0.004	0.005	
Frequency child plays with friends/family in home/garden	Never (ref)	0	0	0	0	0	0	0.40
	1-2 days/week	2.5	2.2	0.6	0.4	4.1	4.0	
		(-0.9, 6.0)	(-1.4, 5.8)	(-7.0, 8.2)	(-7.4, 8.2)	(-0.9, 9.2)	(-1.1, 9.1)	
	3-4 days/week	6.6	6.3	6.7	6.9	6.5	6.4	
		(2.4, 10.7)	(1.8, 10.8)	(-1.8, 15.3)	(-1.9, 15.7)	(0.4, 12.6)	(0.1, 12.7)	
	5 days/week	8.6	8.4	9.3	9.1	7.9	7.8	
		(4.6, 12.5)	(4.3, 12.6)	(1.6, 16.9)	(1.0, 17.2)	(2.5, 13.3)	(2.4, 13.3)	
P for trend		<0.001	<0.001	0.001	0.001	0.003	0.003	
Activity score (per unit)		2.13	2.09	2.58	2.49	1.67	1.66	0.07
		(1.44, 2.82)	(1.37, 2.81)	(1.73, 3.43)	(1.55, 3.42)	(0.86, 2.47)	(0.85, 2.48)	

[*] MVPA Moderate-to-vigorous physical activity; Model 1 is adjusted for age and gender; Model 2 is additionally adjusted for BMI and IMD score

Table S6 Odds ratios for achieving 60 minutes of MVPA per day associated with different activities for those with complete data (N=987)*

Exposure		Meeting government guideline: odds ratio (95% confidence interval)						P for gender interaction
		All (N=987)		Boys (N=439)		Girls (N=548)		
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
Frequency child attends sport/exercise club at school	Never (ref)	1	1	1	1	1	1	0.25
	1-2 days/week	1.27 (0.94, 1.71)	1.25 (0.93, 1.69)	0.97 (0.58, 1.63)	0.93 (0.55, 1.55)	1.57 (1.09, 2.25)	1.57 (1.09, 2.26)	
	3-4 days/week	1.77 (1.05, 2.97)	1.72 (1.03, 2.87)	1.97 (0.93, 4.18)	1.86 (0.88, 3.95)	1.65 (0.93, 2.91)	1.66 (0.94, 2.92)	
	5 days/week	1.63 (0.96, 2.77)	1.61 (0.95, 2.74)	1.49 (0.75, 2.96)	1.40 (0.70, 2.77)	1.73 (0.78, 3.85)	1.76 (0.78, 3.96)	
P for trend		0.03	0.03	0.06	0.10	0.07	0.07	
Frequency child attends sport/exercise club outside of school	Never (ref)	1	1	1	1	1	1	0.66
	1-2 days/week	1.32 (0.91, 1.91)	1.29 (0.88, 1.88)	1.53 (0.89, 2.62)	1.46 (0.83, 2.57)	1.19 (0.72, 1.97)	1.21 (0.74, 1.99)	
	3-4 days/week	2.06 (1.38, 3.07)	1.97 (1.32, 2.95)	2.56 (1.32, 4.98)	2.28 (1.18, 4.40)	1.77 (1.05, 2.98)	1.81 (1.09, 3.03)	
	5 days/week	2.89 (1.76, 4.73)	2.80 (1.69, 4.63)	4.13 (1.97, 8.68)	3.92 (1.82, 8.44)	2.09 (1.06, 4.12)	2.14 (1.10, 4.18)	
P for trend		<0.001	<0.001	<0.001	<0.001	0.006	0.004	
Frequency child plays with friends/family outside near home	Never (ref)	1	1	1	1	1	1	0.89
	1-2 days/week	1.16 (0.70, 1.92)	1.13 (0.70, 1.85)	1.03 (0.46, 2.29)	0.98 (0.43, 2.22)	1.40 (0.59, 3.30)	1.41 (0.60, 3.29)	
	3-4 days/week	1.94 (1.12, 3.35)	1.89 (1.12, 3.21)	1.59 (0.68, 3.75)	1.53 (0.65, 3.62)	2.43 (0.92, 6.45)	2.46 (0.94, 6.42)	
	5 days/week	2.14 (1.26, 3.65)	2.12 (1.26, 3.57)	2.01 (0.88, 4.63)	1.97 (0.85, 4.54)	2.45 (0.95, 6.36)	2.49 (0.97, 6.40)	
P for trend		<0.001	<0.001	0.007	0.005	0.007	0.006	
Frequency child plays with friends/family in home/garden	Never (ref)	1	1	1	1	1	1	0.30
	1-2 days/week	1.33 (0.88, 2.00)	1.30 (0.86, 1.97)	0.96 (0.51, 1.78)	0.94 (0.50, 1.77)	1.92 (0.90, 4.11)	1.94 (0.91, 4.12)	
	3-4 days/week	1.67 (1.10, 2.54)	1.64 (1.07, 2.52)	1.33 (0.66, 2.69)	1.36 (0.66, 2.82)	2.15 (0.96, 4.79)	2.16 (0.97, 4.80)	
	5 days/week	1.86 (1.21, 2.86)	1.85 (1.20, 2.86)	1.68 (0.86, 3.25)	1.67 (0.84, 3.32)	2.18 (1.04, 4.60)	2.20 (1.04, 4.62)	
P for trend		0.002	0.002	0.008	0.008	0.06	0.06	
Activity score (per unit)		1.19 (1.12, 1.26)	1.19 (1.12, 1.26)	1.20 (1.11, 1.30)	1.19 (1.10, 1.30)	1.18 (1.09, 1.28)	1.18 (1.09, 1.28)	0.79

* MVPA Moderate-to-vigorous physical activity; Model 1 is adjusted for age and gender; Model 2 is additionally adjusted for BMI and IMD score