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Are Northern Irish adolescents meeting physical activity recommendations?

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Current UK physical activity (PA) recommendations for children and adolescents are to achieve a minimum of 60 min/d of at least moderate–intensity physical activity⁽¹⁾. Typically, PA levels are determined using activity questionnaires, which are prone to misreporting and are inconsistent in validity and reliability⁽²⁾. However, data collected using accelerometers provide an objective measure of PA, as well as information on frequency, intensity and time spent in PA.

Adolescents (13–17 years, *n* 47) from the Coleraine area of Northern Ireland wore a tri-axial accelerometer (RT3, Stay Health Inc, USA) for 7 consecutive days. The time spent in moderate and vigorous PA (MVPA) was determined using cut-offs by Rowland *et al.*⁽³⁾. Anthropometric measures and the assessment of body composition by isotope dilution were also performed⁽⁴⁾. Body fat was expressed as fat mass index (kg of fat mass/m²) and % body fat. Lean body mass was also expressed in a similar manner (kg of lean mass/m²). Subjects completed a questionnaire on the time spent in sedentary activity including TV/DVD viewing, internet and computer game use.

Complete accelerometry data (≥ 600 min for a minimum of 3 d, including 1 weekend day) were collected from 41 of the 47 subjects (25 boys and 16 girls). Six participants had incomplete data (failure in the field (*n* 3); monitor malfunction (*n* 1); non-compliance with the protocol (*n* 2)). Ten subjects recorded additional MVPA on one or more days when the RT3 was not worn e.g. watersports or contact sports.

Overall boys were leaner and taller compared to girls (*P*<0.05). The monitors were worn for a median of 819 min/d (IQR 783, 874) on a median of 6 (range 3–7 d) with no significant differences between boys and girls. Boys reported higher levels of sedentary activities 5.25 h/d (3.27, 7.57) compared to girls 3.25 h/d (2.36, 3.82, *P*<0.05). From these measures, 19.5% of adolescents met the current PA recommendations of 60 min or more per d of MVPA. Boys with higher MVPA also reported significantly less time spent in sedentary activities (*P*<0.05). These results also suggest that there was a trend for higher body fat in those adolescents who did not meet the PA recommendations. Conversely, those boys meeting the recommendations had greater lean mass.

In this study, adolescent boys spent more time in MVPA and reported fewer hours spent in sedentary activities compared to adolescent girls. These results demonstrate that only 1 in 5 adolescents are meeting the PA recommendations.

	Boys		Boys		Girls		Girls
	Below (<i>n</i> 18)		Meeting (<i>n</i> 7)		Below (<i>n</i> 15)		Meeting (<i>n</i> 1)
MVPA (min/d)*†	20	(5.7, 40.8)	93.0 ^b	(75.4, 122.5)	12.4	(8.8, 29.6)	124.86
Sedentary activity (h/d)‡	6.6	(4.5, 8.1)	3.1 ^a	(2.3, 5.2)	3.3	(2.4, 3.8)	–
BMI (kg/m ²)†	20.7	(18.3, 23.3)	21.1	(19.6, 24.6)	21.8	(19.9, 24.2)	19.6
Overweight [<i>n</i> (%)]§	3	(20%)	2	(29%)	4	(27%)	0
Waist circumference (cm)†	71	(68.5, 81.5)	74	(71.5, 79.0)	73	(68.1, 77.0)	73.8
Fat mass index (kg/m ²)¶	4.72	(3.7)	3.65	(1.09)	7.32	(2.52)	5.27
Lean mass index (kg/m ²)¶	16.7	(1.7)	18	(2.5)	15.1	(1.8)	14.4
% Body fat	20.3	(10.1)	16.9	(5.6)	36	(6.4)	26.9

*Time spent in moderate-vigorous intensity activity by objective measure; †median (interquartile range); MVPA group by Mann–Whitney *U* test; ‡boys (*n* 23); girls (*n* 15); §overweight and obese determined by IOTF BMI cut-offs⁽⁵⁾; ||boys (*n* 24); girls (*n* 15); ¶geometric mean (SE); ^a*P*<0.05; ^b*P*<0.001.

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