



A Comparison of Physical Activity Among S1 Pupils in Six Glasgow Secondary Schools

Findings from the 2013 Survey

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Introduction:

The GoWell in the East End Study of Physical Activity Among Secondary School Pupils

In 2013, GoWell in the East End commenced a cohort study of physical activity among secondary school pupils in Glasgow. The study will run from 2013 to 2017, following a group of pupils throughout their school career from S1 to S5. The study tracks pupils' participation in physical activities, including sports, as well as other types of activity, during their school time and leisure time, during the week and at the weekend. The research is done by asking pupils to complete the Youth Physical Activity Questionnaire (YPAQ)¹. A group of S5 pupils were also asked to complete the survey in 2013 in order to provide a benchmark with which to compare the S1 study cohort when they reach S5 in 2017. The overall survey main findings are published in a Headline Indicators report available at www.gowellonline.com.

The study forms part of our wider research into the impacts of the Commonwealth Games, along with associated regeneration and legacy programmes, on the communities of the East End of Glasgow. To do this, the research design compares physical activity of pupils in six secondary schools in Glasgow, organised into three pairings:

- Two East End secondary schools.
- Two secondary schools located in other deprived parts of Glasgow.
- Two secondary schools in more affluent parts of the city.

By comparing results across the three groups of schools we can see whether physical activity is different between deprived and affluent schools, and whether there is any additional effect from being located near the main Games site in the East End of the city.

A total of 740 S1 pupils completed the YPAQ survey across the six schools in May 2013: 391 girls and 349 boys. This report presents some of the key findings from the baseline 2013 survey of S1 pupils, comparing results for boys and girls across each of the six schools for four activity areas:

- Sports
- Active Travel to School
- Screen Time
- Homework

^{1.} The YPAQ was assessed for validity and reliability in: Corder K, van Sluijs EMF, Wright A, Whincup P, Wareham NJ, Ekelund U: Is it possible to assess free-living physical activity and energy expenditure in young people by self-report? *Am J Clin Nutr* 2009, 89:862-87

Chapter 1: Sports

This chapter compares data from each school, looking at: the number of times pupils had been active doing sports in the week prior to the survey; the range of different sports undertaken; and the most common kinds of sport and physical activity.

Number of Sports Episodes

The YPAQ questionnaire offers a list of 30 different sports and physical activities, of which we have included 25 in our count of sports - see Table1.

Aerobics	Martial arts / boxing	Bowling
Baseball / softball	Netball	Rollerblading / roller skating
Basketball / volleyball	Rugby	Skateboarding
Cricket	Running or jogging	Skiing, snowboarding,
		sledging
Dancing	Swimming lessons	Skipping rope
Football	Swimming for fun	Walk for exercise / hiking
Shinty, Gaelic football,	Trampolining	Racquet sports, e.g. table
lacrosse		tennis, tennis, badminton,
Gymnastics	Golf	squash.
Hockey (field or ice)	Bike riding	

Table 1 Sports Included in the YPAQ

Note: the YPAQ also asks about five other activities, which we did not include in our count of sports: household chores; playing on playground equipment; playing with pets; scooter; and walking the dog.

Pupils were asked if they did any of the sports and physical activities in the past week, separately for weekdays and at the weekend. They were also asked how many times they did each activity, if they did it. Figure 1 shows the median number of times that pupils took part in sports over the past seven days, both during school time and during leisure time, combined.

- The highest number of periods of sports activity was found in one of the East End schools ('A'), with an average (median) of eleven episodes of physical activity participation per week for both boys and girls.
- Apart from this one East End school, it was generally the case that girls had higher rates of participation in physical activity in the advantaged schools than in the disadvantaged schools. A similar pattern was not evident for boys.
- There was more variation in the number of times girls participated in physical activity than boys. In one of the disadvantaged schools, girls took part in physical activity on average five times per week, less than half the number of the times girls did this at the best performing school.



Figure 1 Median number of times pupils did sports in the past week

Range of Sports

Across school-based activities and leisure time activities, we can see how many different kinds of sports pupils did in the past week (see over - Figure 2).

- Overall, it was most common for pupils to take part in 3-5 different sports per week and around a quarter of pupils took part in 6 or more physical activities in a week.
- Very few pupils did not take part in any sports in the past week.
- There was no significant patterning by gender in the range of different sports undertaken.
- Pupils from the two relatively advantaged schools participated in a significantly greater range of sports, compared with the four schools in relatively disadvantaged neighbourhoods.
- The *East End A* school had a relatively high percentage of boys participating in nine or more different physical activities in the week prior to survey (10%).



Figure 2 Number of different kinds of sports undertaken in the last seven days

Most Common Sports: Girls

Looking just at how many pupils took part in each sport in the past week (irrespective of how many times they did the activity in question), we can see what the most popular activities were.

Monday to Friday

The six activities most commonly reported by girls from Monday to Friday can be seen in in Figure 3.

- Running was the most common sports for girls from all schools between Monday and Friday. Over half of the girls participating reported running on weekdays (between 56% in East End B and 89% in Disadvantaged C).
- Dancing was the second most common sport for girls during the week, although there was wide variation in participation figures, with between 17% and 55% of girls taking part across the different schools. This may reflect differences between the schools in the provision of dance as a physical education activity.
- Swimming for fun was the third most common sporting activity for girls during the week ('swimming lessons' was offered as a separate option). Between 17% and 38% of girls reported going swimming for fun
- The next most common weekday activities reported by girls were gymnastics, trampolining and walking/ hiking for exercise. Participation rates in these activities varied between 9% and 35%.



Figure 3 Most common physical activities - Girls (Monday-Friday)

Weekend

The six activities most commonly reported by girls at the weekend can be seen in Figure 4.

- As with weekdays, the top three weekend activities reported by girls were running, dancing and swimming for fun. Trampolining, walking/hiking and cycling also featured. Rates of participation for the most common sports often halved at the weekend compared with weekdays.
- Overall, running was the most common sports for girls on weekends as well as during the week. It was the most frequently reported activity in three of the four relatively disadvantaged schools and the second most frequently reported activity in East End A, Advantaged E and Advantaged F. Participation levels were at approximately half weekday levels, ranging between 20% and 35%.
- Dancing and swimming for fun were the next most commonly reported activities at the weekend. Dancing was the most frequently mentioned activity at East End A and Advantaged F (between one-in-five and two-in-five girls participating). Swimming for fun was the most common weekend activity for Advantaged E girls, reported by up to a third of girls.
- The next most common weekend activities for girls were trampolining and walking/ hiking for exercise. Participation in trampolining was reported by between 9% and 20% of girls. Walking/hiking for exercise participation rates were generally around 13%-14%. However, they were particularly high for Advantaged E girls and relatively low for girls from East End B.
- Cycling is the least frequently mentioned of the top six weekend activities reported by girls (note: this category specifies 'not for school travel', which is treated separately). Participation rates vary between 2% and 15%.



Figure 4 Most common physical activities - Girls (Weekend)

Most Common Sports: Boys

Monday to Friday

The six sports most commonly reported by boys from Monday to Friday can be seen in in Figure 5.

- Overall, football was the most common physical activity for boys during the week, although there was a wide range in participation levels. It was the most frequently reported activity in four of the schools (where participation level ranged between 54% and 78%). Football was the second most commonly reported activity in Disadvantaged C and Advantaged F (which had 36% and 49% reported participation).
- Running was the second most common weekday activity for boys and the most frequently reported activity in Disadvantaged C (44%) and Advantaged F (51%). In the other four schools, where running came second to playing football, participation levels of between 39% and 60% were reported.
- Swimming for fun was the next most commonly reported weekday activity, with between 11% and 33% of boys reporting swimming for fun at each school.
- The next most common weekday sports reported by boys were racquet sports (a category including tennis, badminton, squash and table tennis), cycling and basketball. Participation rates in these activities ranged between 11% and 32% in different schools.
- In the case of four of the top six sports, East End A pupils reported the highest rates of participation.
- The only weekday sport where a relatively advantaged school recorded the highest rate of participation was for racquet sports in Advantaged E.

Figure 5 Most common physical activities - Boys (Monday-Friday)



Weekend

The six sports most commonly reported by boys at the weekend can be seen in Figure 6.

- As with weekdays, the top three weekend activities reported by boys were football, running and swimming for fun. Cycling and racquet sports also continued to feature as frequently reported weekend activities. Walking/ hiking for exercise replaced basketball as the fifth most common activity.
- As with girls, rates of participation in sport at the weekend dropped considerably compared with weekdays.
- Football was the most commonly mentioned weekend activity for boys from all schools. It was played by between 33% (Disadvantaged D) and 54% (East End A) of boys.
- Running was the next most commonly reported activity for boys at the weekend at four of the schools. The exceptions were Disadvantaged D, where swimming was the second most popular sport at the weekend, and Advantaged F, where cycling was the second most popular weekend sport.
- Racquet sports and walking/ hiking for exercise both had relatively low levels of participation.
- Walking/ hiking for exercise was a more common option for boys from the relatively affluent areas, with 19% of boys at Advantaged E and 16% at Advantaged F reporting this activity.
- The highest rate of participation in racquet sports at the weekend was in Advantaged E.



Figure 6 Most common physical activities - Boys (Weekend)

Chapter 2: Active Travel

Pupils were asked how many times per week they travelled to or from school by each of three modes of transport: walking; cycling; or motorised means. Figure 7 shows the number of pupils who, across the week, travelled and from school *only* by active travel means, i.e. by walking, cycling, or a combination of the two, and without any recourse to motorised means.

- The majority of pupils, three-out-of-five, travelled to and from school on a regular basis only by active means.
- Two of the schools, East End A and Disadvantaged D, had lower rates of active travel than the other four schools. This may be a reflection of the size of the school catchment areas.
- Looking at the entire S1 sample together, there was only a small gender difference, with 5% more boys than girls using active travel.
- Advantaged E was the only school where more girls than boys used active travel means.



Figure 7 Percentage of pupils travelling to school by active means (walking and/or cycling)

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Screen Time Activities (Monday-Friday)

Pupils were asked how long in total they spent (in hours and minutes) during their weekdays' leisure time doing a number of things including: using the computer/going online (Figure 10); watching TV/DVDs (Figure 11); and playing computer games (Figure 12).

- Overall, there was no significant difference between boys and girls in the amount of time spent during the week going online, or watching TV. However, boys spent significantly more time than girls playing computer games.
- Pupils in the East End schools, and Disadvantaged schools in general, were more likely to report spending no time on line during the week; this relationship was statistically significant. In fact, in Disadvantaged C, the majority of girls reported that they spent no time online during the week.
- A small percentage of both boys and girls in each school (1%-7% of pupils) reported being online for more than 30 hours of their leisure time between Monday and Friday, with the exception of Disadvantaged C, which had no pupils in the highest use category.
- Most pupils reported watching less than five hours of television during the week. Disadvantaged C was the only school that had 'none' as the largest response grouping for both genders, with neither boys nor girls reported the highest levels (30 hours or more) of television viewing between Monday and Friday.
- Boys spent significantly more time than girls playing computer games. Half the boys in the study spent more than an hour a day during the week playing computer games, including 17% who spent more than three hours per day. Only one-in-ten girls spent more than an hour a day playing computer games during the week.
- Girls from Advantaged E and Advantaged F spent significantly more time playing computer games than girls in the other four schools.
- Pupils from East End B and Advantaged F spent most time on-line during the week.



Figure 8 Total time spent online (Monday-Friday)



Figure 9 Total time spent watching TV/DVDs (Monday-Friday)



Figure 10 Total time spent gaming (Monday-Friday)

Screen Time Activities (Weekend)

Pupils were also asked how long in total they spent (in hours and minutes) during their leisure time at the weekend doing each of the following: using the computer/going online (Figure 13); watching TV/DVDs (Figure 14); and playing computer games (Figure 15).

- Overall, boys and girls spent a comparable amount of time online at the weekend. However, pupils of both genders from Advantaged E and Advantaged F spent more time online at the weekend than their counterparts in the East End and Disadvantaged comparator schools, though East End B was close behind them. This may indicate that pupils in relatively advantaged schools have greater internet access at home than pupils elsewhere.
- Overall, girls spent significantly more time than boys watching TV at the weekend.
- As with time online, both boys and girls from the two schools in relatively affluent areas watched more television than pupils from the other four schools.
- Although larger proportions of pupils from relatively disadvantaged schools had not watched any television over the weekend, East End A and Disadvantaged C also included the largest groupings of pupils in the highest television viewing category (4%-11% reported watching 15-20 hours of television).
- Boys spent significantly more time playing computer games at the weekend than girls. The proportion of boys who did not play computer games over the weekend ranged from 28%-64%, compared with a range of 61%-84% female non-players.
- Overall, one-in-six boys spent ten hours or more playing computer games at the weekend. As with the other screen time indicators, boys from the two advantaged schools played more games at the weekend. However, although boys from Advantaged E and Advantaged F had the lowest proportion of non-players across the six schools (28%-30%), the other four schools had similar or higher proportions of gamers in the highest 15-20 hours category.
- Girls from the two relatively advantaged schools also played more computer games than girls in the other four schools.
- Boys from East End B had the largest proportions of pupils in the top two time categories for all three activities.

Figure 11 Total time spent online (Weekend)





Figure 12 Total time spent watching TV/DVDs (Weekend)



Figure 13 Total time spent gaming (Weekend)

Average Daily Screen Time (Monday-Friday)

We can add the three screen-based activities together to produce a total 'screen time' measure, and divide this by the number of days to calculate the total daily leisure screen time for each pupil (i.e. not including screen time at school or on homework). Data relating to average daily screen time (Monday -Friday) for boys can be found in Figure 16 and for girls in Figure 17.

- During the week, boys had significantly higher daily screen time than girls.
- Across the six schools, just over a fifth of boys spent the equivalent of five hours or more per weekday in front of a screen to go online, watch TV, or play computer games.
- Only one-in-ten girls spent five hours or more in front of a screen during their leisure time on weekdays.
- Disadvantaged D and Advantaged E had the lowest proportion of boys spending 5 or more hours of leisure time a day in front of screens from Monday to Friday (18% and 16% respectively).
- Disadvantaged C had the highest proportion of boys spending 5 hours or more per day on screen (33%).
- Disadvantaged C had the lowest proportion of girls and highest proportion of boys spending 5 or more hours of leisure time a day in front of screens from Monday to Friday (3%). The percentage of highest category screen users for girls in the other schools ranged from 9% to 12%.



Figure 14 Boys - Average Daily Screen Time (Monday-Friday)



Figure 155 Girls - Average Daily Screen Time (Monday-Friday)

Average Daily Screen Time (Weekend)

Aggregate daily screen time figures can also be produced for the weekend in a similar way. Data relating to average daily screen time (Weekend) for boys can be found in Figure 18 and for girls in Figure 19.

- As with weekdays, boys had significantly higher screen time at the weekends than girls.
- Overall, just over a fifth of girls (22%) spent more than five hours per day in front of a screen at the weekend, compared with nearly two-in-five boys (37%).
- Twice as many boys as girls (13% versus 5%) spent more than ten hours per day in front of a screen at the weekend.
- The highest rate of screen usage for boys was at East End B and Advantaged F.
- Disadvantaged C and Disadvantaged D had lower rates of screen usage than other schools. The percentage of boys reporting less than 5 hours average daily screen time at the weekend was relatively high in these schools at 71% and 74%, respectively. This contrasts with figures ranging between 51% and 64% at the other four schools.
- However, Disadvantaged C also had a relatively high proportion of boys (21%) with over ten hours average daily screen time at the weekend. The percentage of boys in the *10 hours* + category ranged between 10% and 17%, with most towards the lower end of that range.
- The highest rates of screen usage for girls were at the two East End Schools.
- The percentage of girls reporting less than 5 hours average daily screen time at the weekend varied between nearly seven out of ten girls at East End A (69%) and nine out of ten at Disadvantaged D (90%).
- At Disadvantaged C, none of the girls reported more than ten hours average daily screen time at the weekend. For the remaining schools, between 3% at East End B and 7% at Advantaged F.



Figure 16 Boys - Average Daily Screen Time (Weekend)

Figure 17 Girls- Average Daily Screen Time (Weekend)



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Chapter 4: Homework

Pupils were asked how much time in total they spent doing homework during the week (Figure 8) and at the weekend (Figure 9). These data will reflect different school policies on setting homework to be done in pupils' free time.

Homework (Monday - Friday)

- Overall, girls did more homework than boys during the week.
- Three of the schools East End A, Disadvantaged C and Disadvantaged B had relatively high proportions of pupils who did no homework in their spare time during the week.
- East End B stood out as the school where most pupils reported doing some homework from Monday to Friday: nearly eight out of ten boys and 9 out of ten girls reported spending time on homework during the week.
- In East End B and Advantaged F, the largest grouping of both boys and girls spent up to one hour on homework during the week.
- The two schools from relatively advantaged neighbourhoods had the highest proportion of pupils reporting over two hours spent on homework between Monday and Friday (between 23% of boys at Advantaged E and 31% of girls at Advantaged F).
- Few pupils did the equivalent of one hour's homework per day, i.e. 5 hours or more during the week and two hours or more at the weekend: around 1-in-20 girls, and fewer boys did this much homework.



Figure 17 Total time spent doing homework (Monday-Friday)

- The vast majority of pupils did no homework at the weekend from around 60% of pupils in Advantaged F to around 90% in East End A.
- Across the entire cohort, there was no statistically significant gender difference in the amount of homework done by boys and girls at the weekend.
- A little over one-in-ten girls at East End B and Disadvantaged D did an hour or more homework across the weekend, as did a similar number of both boys and girls at Advantaged E.
- Pupils in the two advantaged schools did the most homework at the weekend, including a fifth of pupils who did an hour or more's homework in Advantaged F.
- Girls in East End B had a similar profile of homework activity time as girls in Advantaged E.



Figure 18 Total time spent doing homework (Weekend)

Conclusion

This report compares S1 data from the six participant schools on some of the main physical and sedentary activity indicators from the Wave One schools survey, highlighting areas of both interest and challenge relevant to supporting young people's physical activity.

Although overall there were no significant gender differences in the range of physical activities in which the S1 cohort participated (most pupils took part in 3-5 different activities per week), there was more variation in the *number* of times girls were active than for the boys.

Pupils from the two 'advantaged' schools participated in a greater range of activities compared with the four schools in relatively disadvantaged neighbourhoods. However, that one of the East End schools had the highest proportion of boys taking part in nine or more different physical activities per week illustrates the complexity of the situation. An understanding of how specific school and neighbourhood contexts influence young people's physical activity is necessary to fully interpret the statistical findings presented here.

Gendered preferences for different kinds of physical activity may provide part of the answer. Competitive sport, with a predominance of football, featured prominently in boys' activities both during the week and weekend. Running, swimming for fun and cycling formed common ground between the genders but girls alone commonly reported dancing as a weekday and weekend activity.

Cycling was the least frequently mentioned of the girls' common weekend activities; it appeared on both weekday and weekend lists for boys. This is an issue also of interest in relation to active travel, as with the exception of one school, more boys than girls travelled to school by walking or cycling. Gender differences in cycling are also relevant to attempts by public agencies to increase cycling rates in Scotland through the provision of cycling instruction across the city, and in the East End.

Sedentary time constitutes another important challenge relating to long-term health and wellbeing. Boys had significantly higher 'screen time' (being online, watching TV/DVDs and playing computer games) than girls, both during the week and at weekends. Across the six schools, over a fifth of boys and one-in-ten girls spend the equivalent of five hours of more per weekday in front of a screen. At the weekends, twice as many boys as girls reported the equivalent of over ten hours per day on screen time.

Notably, pupils of both genders from the East End and two Disadvantaged schools spent less time online at weekends and had the largest percentages who did not get online at all in their leisure time during the week, so a larger proportion of screen time for those pupils 39 was from TV/DVD watching and computer gaming. In comparison with the other four schools, girls from the two relatively advantaged schools spent significantly more time playing computer games. This set of results may indicate an issue of lesser access to computers and the internet in the home of pupils attending the Disadvantaged Schools.

At S1 level, homework formed only a very small amount of sedentary time, with few pupils reporting the equivalent of one hour's homework per day. Differences between schools in this category may relate to different homework policies e.g. nearly eight out of ten boys and 9 out of ten girls at East End B reported spending time on homework during the week. However, the two schools from relatively advantaged neighbourhoods had the highest proportion of pupils reporting over two hours spent on homework between Monday and Friday, and Advantaged F had the highest levels of time spent on homework at the weekend.

Future Research

The second wave of data collection from the pupils, who are now in S2, took place in Spring 2014 and is being prepared for analysis later in 2014. This will allow us to see if there is evidence of change in participation in sports, or in the duration of sedentary activities like screen time, in the lead up period to the Commonwealth Games. By linking the survey data to pupil census data, we will be able to examine whether pupils' personal or family characteristics affect their activity patterns, along with the influence of their schools. Thereafter, we will continue to collect information on pupils' activities in the three years after the Games, as the pupils move up through their schools towards S5, at which point we will compare their levels of physical activity with those of pupils who were in S5 four years earlier, before the Games, in 2013.

We will continue to present results which compare the six study schools, though we will also collect more information from the schools on their policies and provision to provide context for the findings.

In addition to comparing the Schools, we will also conduct other analyses to explore wider issues such as;

- Rates of participation for individual sports, and the balance of physical activities between school-time and leisure time.
- Physical and sedentary activity by pupils' ethnicity and religion, which may be of interest to those schools that have very diverse pupil intakes.
- The relationship between sports participation and time spent on homework.
- Whether pupils from poor family backgrounds exhibit different patterns of activity depending on what type of school they attend, disadvantaged or advantaged.

Findings will be disseminated when available.