



Gender Matters: Physical Activity Patterns of Schoolchildren in Scotland

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Introduction

For adolescents and children, regular participation in physical activity is known to have many positive effects. Physical activity stimulates blood flow and can increase the aerobic capacity of the heart. It can help to strengthen muscle, enhance flexibility and endurance. Reasons for engaging in physical activity are numerous, and might include, for example: sheer enjoyment of an activity, a sense of achievement or ability; 'feeling better'; weight control or body building and increased mental well-being and acuity¹.

There is a considerable body of evidence which shows that regular participation in moderate to vigorous activity is an essential part of a healthy lifestyle^{2, 3, 4, 5}. Active young people are more likely to report better general health⁶. In addition, many argue that physical activity patterns established in childhood are reflected later in life. In short, active young people may be more likely to be active adults². The health-related implications of physical activity can span a lifetime; habits established during childhood and adolescence can also affect health-related outcomes during adulthood^{2, 6, 7, 8}.

There is, however, a growing concern over the small and irregular amounts of physical activity reported by many young people^{5, 7, 9}. This, combined with increasing levels of obesity, is of international concern. Another matter of note is the apparent gender difference in reported patterns of activity¹⁰.

What constitutes sufficient activity? This has been a topic of debate for many years and guidelines have not remained fixed. Current guidelines for young people are as follows:

- ideally, all young people should participate in physical activity of at least a moderate intensity for one hour each day for not less than five days a week[#]
- for those young people currently undertaking little activity, the guidelines recommend a daily target of 30 minutes, initially

[#] *Moderate intensity was defined as being equivalent to brisk walking which might leave the participant feeling '...warm and slightly out of breath.'*

Main findings

- ~ Boys report more physical activity than girls at ages 11, 13 and 15.
- ~ Boys are significantly more likely than girls to meet the current 60 minute activity guideline.
- ~ Health status is significantly associated with meeting the guideline for boys but not girls.
- ~ A range of psychological, social and environmental factors were also significantly associated with meeting the guideline for both boys and girls.

c) furthermore, it is recommended that activities specifically aimed at improving muscular strength, flexibility and bone health should be undertaken two or more days a week^{6, 11}.

Results from the 1998 Scottish Health Survey showed that at age 10-11, 77% of boys met the moderate to vigorous physical activity (MVPA) guideline as defined in (a) as compared with 66% of girls. Participation waned for 12-13 year olds to 70% for boys and 50% for girls. Among 14-15 year olds, 65% of boys and 36% of girls met the MVPA guideline¹⁰.

A better understanding of the physical activity patterns of young people in Scotland, and gender differences in particular, is necessary to promote greater participation and reduce this gender divide in adolescence. This understanding will also assist in efforts aimed at meeting the targets set by the Physical Activity Task Force⁵.

In this Briefing Paper, data from the Health Behaviour in School-Aged Children (HBSC): WHO Collaborative Cross-National Study are presented. The average number of days young people described being active for 60 minutes or more is reported and then characterised as meeting or not meeting the 60 minute MVPA guideline. Activity patterns are reported in relation to gender, health and well-being as well as other psychological, environmental and social determinants.

Details of the 2002 Survey in Scotland

The Health Behaviour in School-Aged Children (HBSC): WHO Collaborative Cross-National Study was conducted in 35 countries during 2001/2¹². A nationally representative sample of mixed ability classes in Scotland was drawn from both state and independent schools. In total, responses from 4,404 young people comprised the final sample of pupils in Primary 7 (11 year olds), Secondary 2 (13 year olds) and Secondary 4 (15 year olds).

Moderate-to-vigorous physical activity (MVPA) was measured using two items¹³, and was preceded by a definition of physical activity.

Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time. Physical activity can be done in sports, school activities, playing with friends, or walking to school. Some examples of physical activity are running, walking quickly, cycling, dancing, skateboarding, swimming, football, and gymnastics. For these next two questions, add up all the time you spend in physical activity each day.

(a) Over the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?

(b) Over a typical or usual week, on how many days are you physically active for a total of at least 60 minutes per day?

Response categories to the above items were: 0 days, 1, 2, etc. ...up to 7 days.

An average score (a+b/2) of five or more identifies a respondent as meeting the primary guideline of at least 60 minutes of MVPA on five or more days.

Analyses presented here were carried out on 4,080 pupils; 1,600, 1,405 and 1,075 aged 11, 13 and 15 years, respectively. This represents a 92.6% subsample of survey respondents, for whom no missing data were recorded for the items presented, and therefore findings reported here may vary slightly from those reported elsewhere.

Average Days of Physical Activity

Activity patterns varied markedly by gender and age as shown in Figures 1-3. Overall, the average number of days that boys reported at least 60 minutes of physical activity during the week prior to the survey was 4.5 compared to 3.7 for girls.

While many young people reported that they often engaged in 60 minutes of moderate-to-vigorous physical activity (MVPA), a substantial number reported little activity of this sort throughout a week. Boys reported more activity than girls and these gender differences became more pronounced with age.

At age 11, 27.6% of boys reported three or fewer days which included 60 minutes of MVPA during the previous week, compared to 37.4% for girls. This represents a gender gap of 9.8% (***)

By age 15, this gap rises to 23.7% (**), with 37.8% of boys and 61.5% of girls reporting three or fewer days which included 60 minutes of MVPA during the previous week.

Figure 1: MVPA patterns among 11 year olds

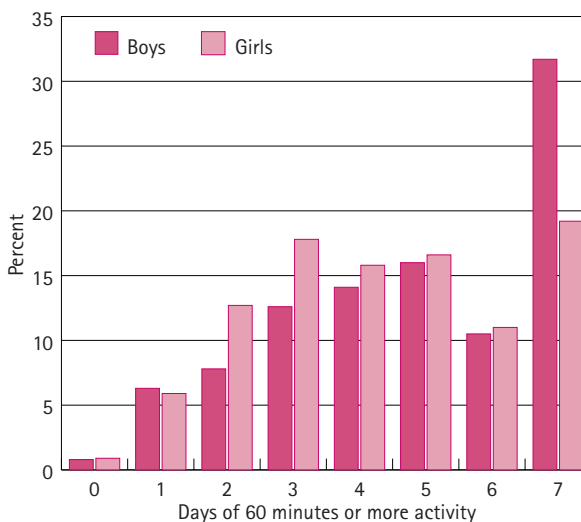


Figure 2: MVPA patterns among 13 year olds

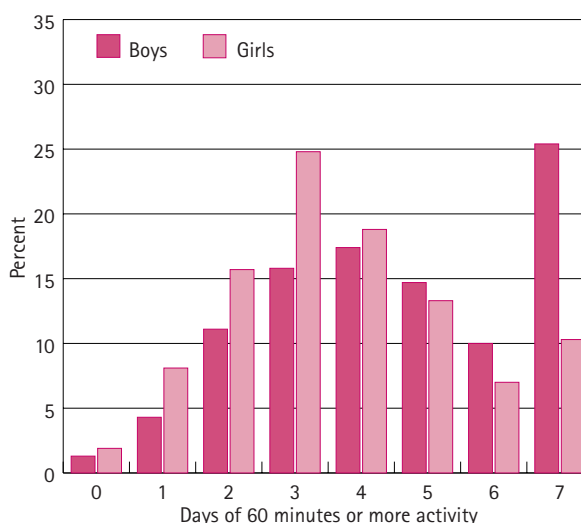
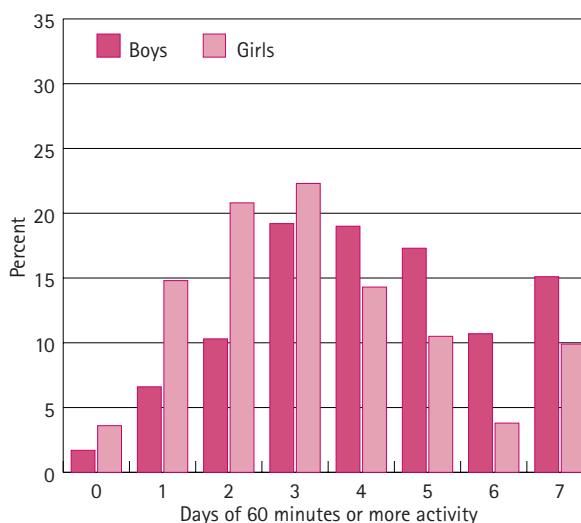


Figure 3: MVPA patterns among 15 year olds

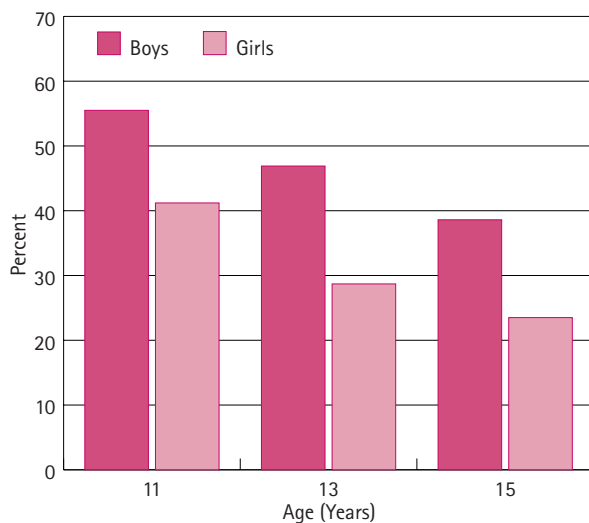


The 60-minute Guideline

Not only do general patterns of physical activity fall off as children move through adolescence, the proportion meeting the current physical activity guideline also declines significantly between 11 and 15 years both for boys (***) and girls (***) (Figure 4). At age 11, 55.5% of boys and 41.2% of girls reported meeting the 60 minute MVPA guideline compared with 46.9% of boys and 28.7% of girls aged 13 and 38.6% and 23.5% of boys and girls aged 15.

Significantly more boys than girls reported meeting the guideline (47.1% vs. 30.9%,**). Indeed, significant gender differences are found across all three age groups (***). By the age of 15, two in five boys reach the recommended level of MVPA compared to about one in five girls.

Figure 4: Percent boys and girls meeting the five day 60 minute MVPA guideline



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Health and well-being

A person's perception of their own health status is likely to affect a number of factors within their daily life, including levels of physical activity. Conversely, participation in MVPA may affect perceived health status. Health and well-being is but one context in which physical activity might be considered⁶.

General health status was measured with the following item:

Would you say your health is ...Excellent; Good; Fair; or Poor?

The majority of young people in the HBSC study reported their health status to be good or excellent (80.0%). For the sample as a whole, there was a significant association between reported participation in physical activity and feeling well (***). Figure 5 illustrates that those who define their health as good or excellent were more likely to report meeting the 60 minute MVPA guideline.

Figure 5: Percent boys and girls meeting the 60 minute MVPA guideline and self reported health status



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Boys who met the 60 minute MVPA guideline were more likely than girls to report good or excellent health (***)

The likelihood of an 11, 13 or 15 year old girl meeting the 60 minute MVPA guideline was not related to her perceived health status. For boys, however, perceived health status was strongly associated with meeting the guideline (***)

Psychological, Environmental and Social Factors

There are a number of other factors that may be associated with activity patterns^{3, 4, 5, 14}. Those measured can be classified as: psychological: enjoyment of physical activity and confidence in one's own ability; environmental: perceptions of safety and local opportunity; and social: participation in physical activities with parents and friends. Each was examined through the survey using the following statements:

Here are some statements about physical activity. Please show how much you agree or disagree with each one.

I really enjoy doing physical activities.

I feel confident about my skills when I am doing physical activity.

I feel safe when I take part in physical activity in the area where I live.

There are plenty of places where I can take part in physical activity in the area where I live.

I take part in physical activity with my parents.

I take part in physical activity with my friends.

Response categories were: *agree a lot; agree a bit; neither agree nor disagree; disagree a bit and disagree a lot* and were recoded into *agree, neither agree nor disagree, and disagree*.

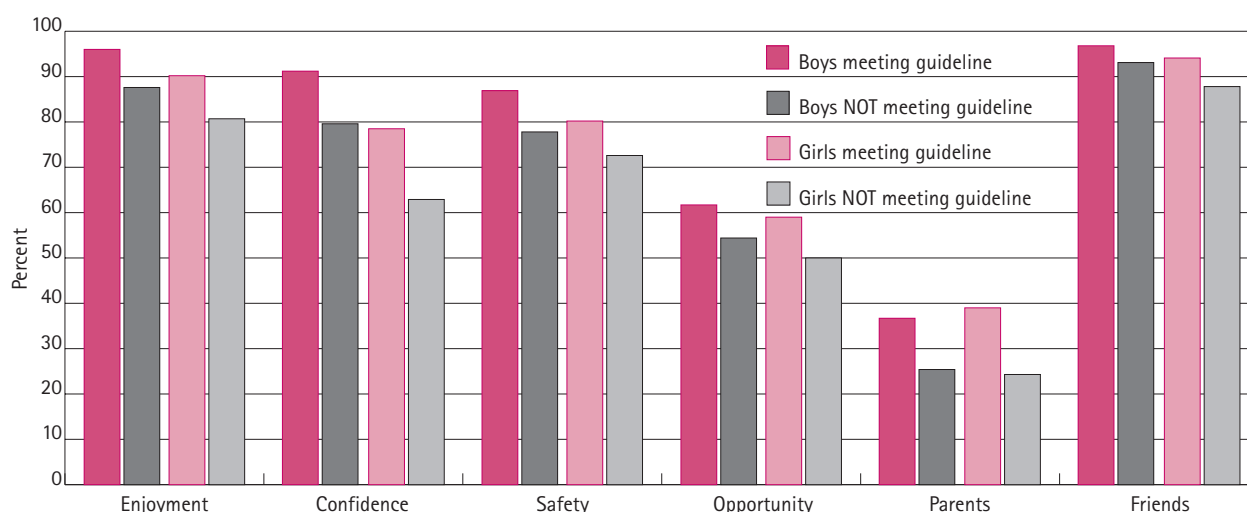
Boys and girls differed significantly in the proportion that agreed with each statement (with the exception of taking part in physical activity with parents). Boys were more likely to respond positively than girls. The percentages are as follows:

Psychological, Environmental and Social Factors	% Agreement		p
	Boys	Girls	
I really enjoy doing physical activities (Enjoyment)	91.6	83.6	***
I feel confident about my skills when I am doing physical activity (Confidence)	85.1	67.7	***
I feel safe when I take part in physical activity in the area where I live (Safety)	82.1	75.0	***
There are plenty of places where I can take part in physical activity in the area where I live (Opportunity)	58.4	52.7	***
I take part in physical activity with my parents (Parents)	30.8	28.8	NS
I take part in physical activity with my friends (Friends)	94.8	89.7	***

Agreement on each factor was also significantly associated with meeting or not meeting the 60-minute physical activity guideline both for boys (**) and girls (***). In other words, those young people meeting the MVPA guideline were more likely to give positive responses than those who did not meet the guideline. In Figure 6, the percentages of boys meeting and not meeting the guideline; and girls meeting or not meeting the guideline are presented for each factor.

The gender difference in positive responses persists among those meeting the guideline for four out of the six factors. Comparisons between boys and girls *who met the guideline* highlighted that significantly more boys than girls reported that they enjoyed

Figure 6: Psychological, Environmental and Social factors associated with meeting the 60 minute MVPA guideline or not meeting the guideline



physical activity (96.0% vs. 90.2%, ***), felt confident in their physical activity abilities (91.3% vs. 78.5%, ***), felt safe taking part in physical activity locally (86.9% vs. 80.2%, **) and engaged in physical activities with their friends (96.8% vs. 94.1%, *). Responses to the statements about local opportunity for physical activity and taking part in physical activity with parents, however, were similar for both genders among those meeting the guideline.

Discussion

There is general agreement that reported levels of physical activity are low, and the data presented here support this contention. However, the focus of this Briefing Paper is to highlight gender differences in physical activity patterns among young people in Scotland.

Gender differences are not a new phenomenon and have been frequently reported in spite of methodological differences in survey design^{3, 4, 5, 9, 13}. In 1998 the Scottish Health Survey, which relied on proxy reporting of physical activity patterns, reported consistent gender inequalities⁹. Comparison of the above survey in 1998 with the 2001/2 HBSC survey, which relied upon self-reporting, reveals similar gender differences.

While it is not possible to say, for example, that the precise difference in the percent of boys and girls who meet the guideline is 14.3% at age 11 or 15.1% at age 15, current findings suggest that the magnitude of the real gender difference lies between 9.5% and 20.5%. Any effort to reduce inequalities and achieve the National Physical Activity Strategy Targets⁵ for young people must address these inequalities.

The finding that girls are less likely to meet the guideline appears to be affected by a range of variables including those of a psychological, environmental and social nature. This would suggest that interventions aimed at promoting physical activity and reducing the gender gap should have multiple components and seek to address these inequalities. While many people are actively working to reduce these differences, efforts should continue and in all cases strive to be sensitive to the needs of girls as well as boys.

Summary of 2002 HBSC findings

The current guideline for physical activity among young people is that young people should participate in physical activity of at least a moderate intensity for 60 minutes a day for not less than five days a week⁶

- Boys are significantly more likely to meet the guideline than girls (47.1% vs. 30.9%,***)
- Percentages meeting the guideline decline with age among both boys and girls
Age 11, boys 55.5% vs. girls 41.2%
Age 13, boys 46.8% vs. girls 28.7%
Age 15, boys 38.6% vs. girls 23.5%
- Boys who meet the guideline are more likely to report feeling healthy than those who do not meet the guideline
- Among girls, no relationship is found between meeting the guidelines and feeling healthy
- Boys report higher levels of enjoyment and confidence in relation to physical activity than girls, and are more likely to take part in physical activity with friends, to report more local opportunities for physical activity and to feel safe taking part in physical activity locally
- Young people who meet the guideline report higher levels of enjoyment and confidence than those who do not meet the guideline, and are more likely to take part in physical activity with friends and to feel safe taking part in physical activity locally

Further statistical information

Further statistical information will be available in the form of tables and a technical report. These will be available on the HBSC page of the CAHRU website (www.education.ed.ac.uk/cahru/projects/hbsc) or directly from CAHRU.

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HBSC publications and HBSC information

See CAHRU website (www.education.ed.ac.uk/cahru/projects/hbse) and also the International Study website (www.hbse.org). CAHRU is the International Coordinating Centre of the HBSC Study.

Reports from this and earlier surveys include

Todd J, and Currie C. (2003). *HBSC Briefing Paper 2. Mental well-being among schoolchildren in Scotland: age and gender patterns, trends and cross-national comparisons*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

Todd J, Currie C and Smith R. (2003). *HBSC Briefing Paper 1. Introduction, background and dissemination of the 2002 HBSC survey in Scotland*. Child & Adolescent Health Research Unit (CAHRU), Edinburgh.

Todd J, Currie C and Smith R. (2000) *Health Behaviours of Scottish Schoolchildren: Technical Report 3: Eating Patterns and Physical Activity in the 1990s*

Todd J, Currie C and Smith R. (1999) *Health Behaviours of Scottish Schoolchildren: Technical Report 2: Sexual Health in the 1990s*. Edinburgh: RUHBC and HEBS.

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