

CHILD'S PLAY 2013?



Active Healthy
Kids Scotland
Report Card
Detailed Methodology
and Findings

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www.activehealthykidsscotland.co.uk

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Abbreviations and Definitions

BMI	Body mass index (calculated as weight in kg divided by height in metres squared)
GUS	Growing Up in Scotland
HBSC	Health Behaviour in School Age Children Survey
ISD	Information and Statistics Division of NHS Scotland
MVPA	Moderate-to-vigorous intensity physical activity (activities with an energy cost at least three times the cost of resting, roughly equivalent to brisk walking)
NHS	National Health Service
NMES	Non-Milk Extrinsic Sugars
NTS	National Travel Survey
SHS	Scottish Household Survey
SHeS	Scottish Health Survey
SIGN	Scottish Intercollegiate Guidelines Network

Summary of Indicators and Grades from the Short Form Card

Physical Activity and Health Behaviours and Outcomes

<p>Sedentary Behaviour (Including recreational screen time, TV viewing, gaming, internet use)</p> <p>The Scottish Intercollegiate Guidelines Network recommends that school-age children and adolescents should spend no more than 2 hours per day in recreational screen time, and this is consistent with international recommendations.</p> <p>76% of Scottish 11-15 year olds report more than 2 hours per day of TV alone. In addition, 77% of boys and 37% of girls report 2 hours per day of gaming^{2010 HBSC Scotland Survey}.</p>	U
<p>Physical Activity</p> <p>Among 11-15 year olds, only 19% of boys and 11% of girls^{2010 HBSC} met the Scottish, UK, and international recommendation of at least 60 minutes per day of daily physical activity of at least moderate intensity.</p>	U
<p>Active Transportation</p> <p>Multiple sources of data suggest that just over half of Scottish primary school children regularly commute actively (walking or cycling) to school, and about 40-50% of those at secondary school regularly commute actively^{Scottish Health Survey 2010; National Travel Survey 2012; Hands Up Scotland Survey 2011}.</p>	C
<p>Active and Outdoor Play</p> <p>57% of Scottish children were reported to play outdoors for at least 30 minutes for at least five times in the last week^{Scottish Health Survey}. In the absence of a recommendation, and given the F grades for sedentary behaviour and overall physical activity, this is difficult to grade.</p>	INC
<p>Organised Sports Participation</p> <p>Participation in sport at least once in the previous week was reported for 69% of 2-15 year olds^{Scottish Health Survey data aggregated to 2011}. In the absence of a recommendation, and given the F grades for sedentary behaviour and physical activity, this is difficult to grade.</p>	INC
<p>Diet</p> <p>Sugar* intake should not exceed 11% of energy intake^{Scottish Dietary Target for Children}. Sugar intake reached 15% of energy intake in 3-7 year olds, 16% in 8-11 year olds, and 17% in 12-16 year olds, increasing with increasing levels of deprivation.^{Survey of Diet Among Children in Scotland 2010}</p> <p>Children and adolescents typically had 2 –3 portions of fruit and vegetables per day, and only 14% met the ‘5 a day’ recommendation^{Scottish Health Survey 2011}. Fruit and vegetable intake was lowest among more deprived children and adolescents^{Survey of Diet Among Children in Scotland 2010}.</p> <p>Average intake of saturated fat (13%) exceeded the 11% of energy intake recommended; average total fat intake as was 33% of energy intake which met the recommendation to not exceed 35% of energy intake^{Survey of Diet Among Children in Scotland 2010}.</p> <p style="text-align: right;">* Non-Milk Extrinsic Sugars</p>	D

Physical Activity and Health Behaviours and Outcomes

Obesity

Multiple data sources suggest that levels of obesity among children and adolescents are higher than at any time in our history. Obesity prevalence among children and adolescents has more than trebled since 1990, and obesity is more common among the more deprived^{Scottish Health Survey 2011}.

F-

Settings and Influences on Physical Activity and Health

Family and Peer Influence

48% of adult men and 33% of adult women reported meeting the physical activity recommendation of 5 x 30 minutes of moderate-vigorous intensity physical activity per week^{Scottish Health Survey 2011}.

More than 28% of adults were obese and 64% either overweight or obese in 2011^{Scottish Health Survey 2011}.

Only 22% of Scottish adults reported meeting the '5 a day' fruit and vegetable intake recommendation in 2011^{Scottish Health Survey 2011}, fruit and vegetable consumption is lower in the more deprived, and purchasing may have been declining recently^{Living Cost and Food Surveys}.

D-

Community and the Built Environment

(Perceived safety, access, and availability of space for physical activity)

77-81% of Scottish adolescents felt that it was 'always safe for children to play outside' and 51% agreed that they 'always felt safe locally'^{2010 HBSC Scotland Survey}.

77% of parents of 5 year olds agreed or strongly agreed that local outdoor space was safe for their children^{Growing Up in Scotland}.

88% of parents of under 5 year olds reported having access to a park or play area locally^{Growing Up in Scotland} and 40-50% of households reported having access to a park or play area locally.

B

National Policy, Strategy, and Investment

(Including Schools)

Physical activity and health is given great emphasis in national policy, strategy, and investment^{www.scotland.gov.uk}.

Many of the Health Behaviours and Outcomes graded in the first section of this card are the focus of national policies, investments and/or targets for improvement.

B

Authors and Contributors



The 2013 Active Healthy Kids Scotland Report Card was produced by a working group from the University of Strathclyde (Prof John J Reilly), University of Aberdeen (Prof Geraldine McNeill, Dr Smita Dick), and the Children's Hospital of Eastern Ontario Healthy Active Living and Obesity Research Institute (Prof Mark S Tremblay).

The working group was advised by a steering group (Dr Julie Armstrong, Glasgow Caledonian University; Dr Tim Lobstein, International Obesity Task Force, Members of the Obesity Working Group of the Scottish School of Public Health Research). A much larger group of stakeholders provided information on sources of Scottish data, and commented on early drafts of the Report Card at a meeting in Glasgow on 4th June 2013, and as part of an online consultation in June and July 2013. A full list of stakeholders is provided on page 25.

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scottish universities insight institute
mobilising knowledge for a better Scotland

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An academic publication describing the 2013 Active Healthy Kids Report Card will be submitted to the Journal of Physical Activity & Health in 2013.

Future Cards

The 2013 Active Healthy Kids Scotland Report Card was inspired by the Active Healthy Kids Canada Report Card, and joins an emerging

international network of Active Healthy Kids Report Cards (www.activehealthykids.ca).

The 2013 first Scottish card should not also be the last card:

In May 2014 Scottish data will be reported in the context of the other international cards, permitting international comparisons.

In May 2015 we plan to publish the second Active Healthy Kids Scotland Report Card. To do so will require further funding, and if you are interested in providing funding for the production of future cards, or in joining the team to develop future cards, please contact Professor John J Reilly (john.j.reilly@strath.ac.uk).

About the Active Healthy Kids Scotland Report Card 2013

Active Healthy Kids Scotland was established in 2013 with funding for a 7 month period to produce this, the first Active Healthy Kids Scotland Report Card.

We aim to use the Scottish Report Card, now and in future, to engage Scottish children and adolescents in physical activity, and in doing so to improve their health, wellbeing, and academic attainment.

Specifically, we aim to:

- critically assess the 'state of the nation' for physical activity and health among children and adolescents;
- identify important gaps in our knowledge;
- provide direction as to how to increase physical activity among Scottish children and adolescents;
- present the physical activity and health of Scottish children and adolescents in an international context;
- determine whether the problem of low physical activity among children and adolescents is improving.

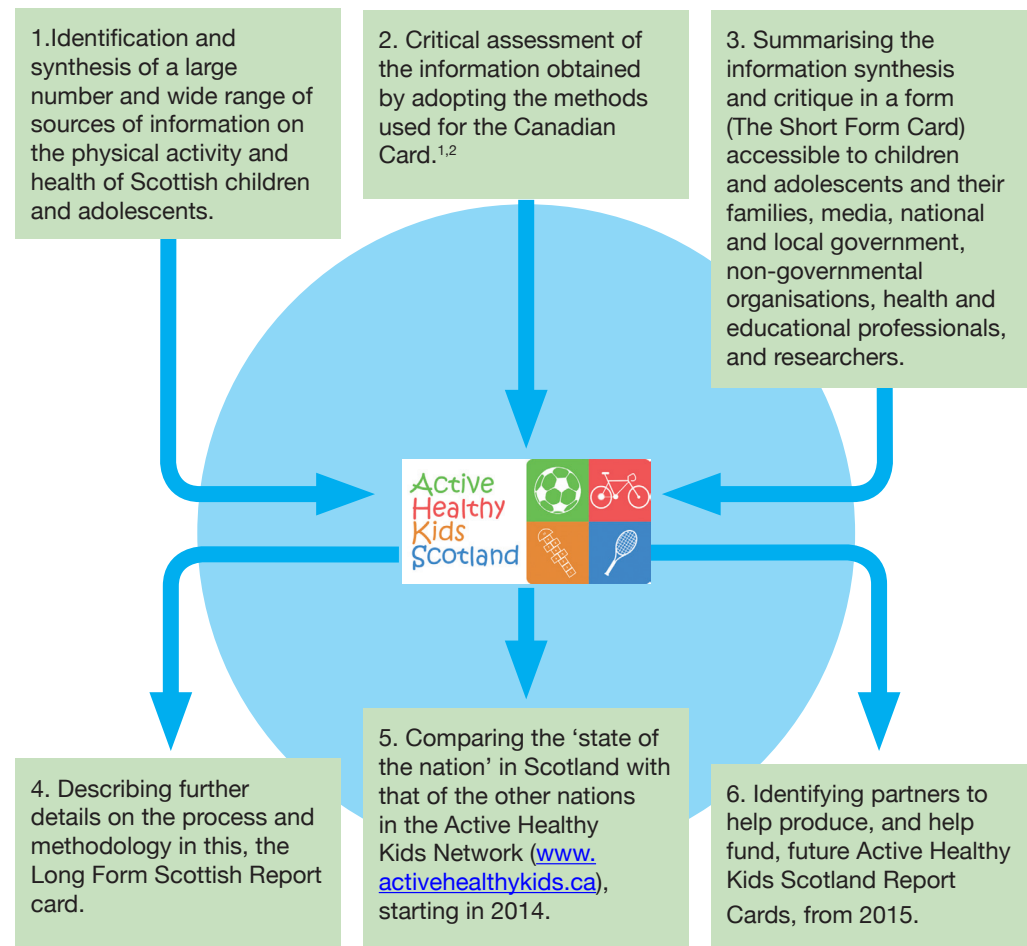
Inspiration

This Active Healthy Kids Report Card was inspired by the Canadian example (www.activehealthykids.ca) which has been published annually for the last 9 years.

Active Healthy Kids Report Cards have been influential in a number of countries (e.g. Canada, the USA, Mexico, South Africa, Kenya), by providing an assessment of the 'state of the nation', identifying knowledge gaps in each country, advocating for improvements in the assessment of the state of the nation ('public health surveillance'), and suggesting solutions to the problem of low physical activity among children and adolescents. The knowledge shared by the Active Healthy Kids Report Cards has helped stakeholders build better programmes and policies to address low physical activity in other countries, and it is our intention that Scottish Report Cards will be used for this purpose.

Stages of Work

This first Active Healthy Kids Scotland Report Card is based on six stages of work.



Grades

Common to all report cards are the grades. This first Scottish Report Card 2013 assigns grades to 10 indicators grouped into 2 categories (see below).

The card grades are based on an assessment of current Scottish data for each indicator, judged against a benchmark (an evidence-based recommendation where this is available). Nationally representative Scottish data were used where possible, as this is a national report card. Grades were determined by the percentage of Scottish children and adolescents meeting the benchmark, using the Active Healthy Kids Canada Grading System^{1,2} as follows.

A	We are succeeding with a large majority of children and adolescents (80-100%)
B	We are succeeding with well over half of children and adolescents (60-79%).
C	We are succeeding with about half of children and adolescents (40-59%)
D	We are succeeding with less than half of our children and adolescents (20-39%)
F	We are succeeding with very few children and adolescents (0-19%).
INC	(Incomplete Grade). Where current Scottish data were not available, or were inadequate to assign a grade.

Report Card Grades also contain important information, where it is available, about trends over time and the presence of inequalities (e.g. by age, gender, ethnicity, or socio-economic deprivation).

Grades are assigned a '+' if trends are improving or if there is no marked inequality, and assigned a '-' if they are getting worse or if there is marked inequality.

The grades provide a robust assessment of the 'state of the nation', i.e. how we are doing as a country in promoting physical activity and health among children and adolescents in Scotland.

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The 10 health indicators are grouped into 2 categories:

Physical Activity and Health Behaviours and Outcomes

- 1 Sedentary Behaviour
- 2 Physical Activity
- 3 Active Transportation
- 4 Active and Outdoor Play
- 5 Organised Sport Participation
- 6 Diet
- 7 Obesity

Settings and Influences on Physical Activity and Health

- 8 Family And Peer Influence
- 9 Community and the Built Environment
- 10 National Policy, Strategy, and Investment



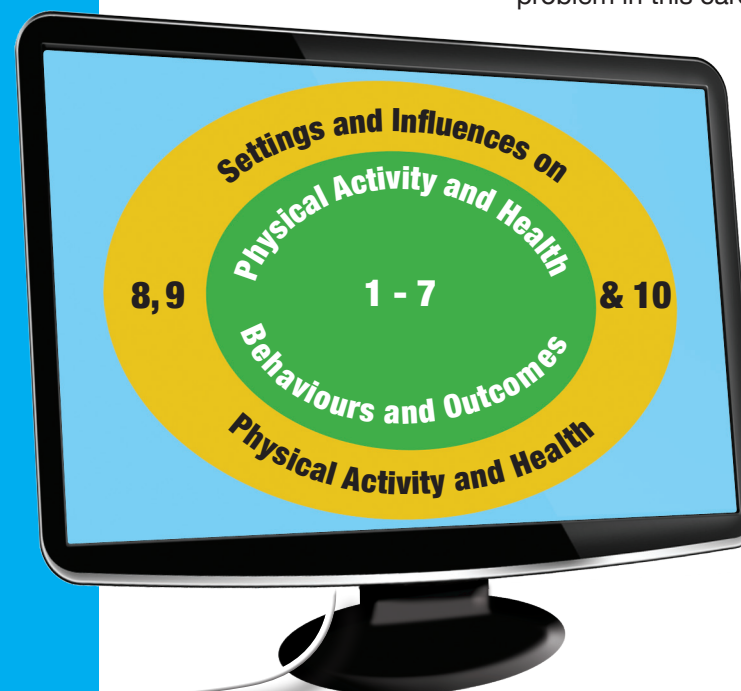
Summary

For each of the 10 health indicators, in the two categories summarised below, a summary of the process by which sources of data were identified, and grades assigned, is given below. For each indicator the format is as follows:

- The grade assigned in the 2013 card.
- The appropriate benchmark (evidence-based recommendation), where this is available.
- The Scottish data sources considered, and the rationale for choice of data used to inform the 2013 card and assign the grade for each indicator.
- Reasons for including or excluding data.
- Information considered when assigning the grade, informed by the expertise of the working group, steering group and stakeholders, and informed by systematic reviews of the relevant scientific literature where these were available.

Information common to all of the health indicators in the card:

- Probability and direction of bias in the measure used for each indicator (is the actual health behaviour or health outcome better or worse than is suggested by the data used to inform the grade, i.e. are we likely to be overestimating or underestimating the scale of the problem in this card?);
- Are trend data available now, or likely to be available in the future?;
- Are data on inequalities available now, or likely to be available in the future?;
- What are the major gaps in our knowledge in Scotland?;
- Recommendations for improving the measurement of that indicator in future;
- Brief recommendations for improving the grade in future.



Physical Activity and Health Behaviours and Outcomes

F

Sedentary Behaviour



- Few Scottish 11-15 year olds meet the recommendation for screen time.
- 76% report more than 2 hours per day of TV alone³⁰.
- In addition, 77% of boys and 37% of girls report 2 hours per day of gaming³.

Recommendation or benchmark

SIGN Guidelines (SIGN www.sign.ac.uk) recommend that school-age children and adolescents should spend no more than 2 hours per day/14 hours per week in recreational screen time⁴, largely on the grounds that this would be helpful in obesity prevention and management. The SIGN recommendation is the same as many other international recommendations.

Main data sources considered

The Health Behaviour in School-Aged Children survey³ provides self-reported recreational screen time in 11, 13 and 15 year olds. GUS⁵ has some parent-reported data for younger children, and some data are available in Scottish dietary surveys.

Reasons for choice of data source used to assign the grade

Nationally representative data available.

The Scottish Health Survey⁶ (SHeS) has only recently started to collect screen time data-this should be useful in future cards.

Likely biases in the Scottish data

A systematic review by Lubans et al⁷ concluded that most self and parent-reported methods of measuring sedentary behaviour, including screen time, probably have reasonable reliability but are of unknown validity; self- and parent-proxy reports may underestimate recreational screen time⁷.

Are trend data available?

Yes, from HBSC, and GUS and SHeS in future.

Are inequality data available?

Yes, from all data sources referred to above.

Major gaps in the Scottish data/How to improve the card in future

There is a lack of accurate data from pre-adolescents.

Data derived from objective measurement of recreational screen time would be desirable⁷. Non-screen based sedentary behaviour and total time sedentary are important health behaviours⁸ which have to be measured objectively⁹, and are not measured in Scottish surveillance at present.

Major gaps in the Scottish data/How to improve the card in future (cont.)

Recent evidence from adults shows that both the time spent sitting, and the extent to which sitting time is 'fragmented' (characterised by prolonged bouts or interrupted) influence risk of later heart disease, diabetes, and premature mortality⁸. Sitting time and fragmentation probably have to be measured objectively^{8,9}, and these data are not collected in Scottish surveillance at present.

How to improve the grade in future

The majority of Scottish children and adolescents need to make substantial reductions to their recreational screen time.

Awareness of the importance of reducing sedentary behaviour for health is limited among the public, and among health and educational professionals and policymakers. Raising awareness of the importance of screen time, non-screen sedentary behaviour, and sitting time and sitting fragmentation is an essential first step.

SIGN Guideline 115 has valuable information on reduction in screen time⁴.

F

Physical Activity



- Among 11-15 year olds, only 19% of boys and 11% of girls³ met the Scottish, UK, and international recommendation.

Recommendation or benchmark

The UK Health Departments 'Start Active Stay Active' report¹⁰ recommends that school-age children and adolescents achieve at least 60 minutes of physical activity of at least moderate intensity every day. For pre-school children the recommendation is at least 3 hours of physical activity of any intensity every day. These recommendations are consistent with international recommendations.

Main data sources considered

The SHeS data are parent-reported and assume that all physical activity reported is of at least moderate intensity. This is unrealistic as most physical activity is usually of light intensity^{9,11}, so that levels of MVPA reported in the SHeS are too high¹².

The HBSC uses self-reported measures of MVPA, but provides more realistic estimates of PA levels, with some evidence of validity relative to a criterion measure of physical activity¹³, and so these were used in the 2013 card.

Validity of GUS data on younger children is unknown.

Reasons for choice of data source used to assign the grade

Nationally representative data available for adolescents. The most valid data were used, from HBSC 2010.

Likely biases in the Scottish data

SHeS data overestimate MVPA, by 2 hours per day on average in one study of 6-7 year olds.¹² Biases in the data used in HBSC are less marked¹³.

Are trend data available?

Yes, from all current sources of data.

Are inequality data available?

Yes, from all current sources of data. However, a review of UK studies⁹ found that socio-economic inequalities in physical activity identified in studies which used subjective (self or parent-proxy report) methods were not real. Such inequalities have not been present in the studies which used objective methods (e.g. accelerometry).

Major gaps in the Scottish data/How to improve the card in future

There was a lack of accurate data for children.

Measuring habitual physical activity objectively in public health surveillance, as in some other countries^{1,2,14}, is essential⁹.

The 3-hour per day recommendation for pre-school children is relatively new and no assessment of adherence to it has been made to date.

How to improve the grade in future

The majority of Scottish children and adolescents need to increase their levels of habitual physical activity through behaviours covered elsewhere in this card: reduced sedentary behaviour; increased active play, active transportation, and sport participation; continued policy implementation/more effective policy implementation; more attention to environmental influences on physical activity.

C**Active Transportation**

- Multiple sources of national data suggest that just over half of Scottish primary school children regularly commute actively to school (i.e. walk or cycle), and about 40-50% of those at secondary school regularly commute actively^{3,6,15,16}

Recommendation or benchmark

There is no applicable evidence-based recommendation, but systematic reviews consistently report a number of health benefits to active commuting, in particular increased overall physical activity.^{e.g.17}

Main data sources considered

Many sources of data are available, as noted above^{3,6,15,16}.

Reasons for choice of data source used to assign the grade

Nationally representative data are available.

The data sources identified were remarkably consistent.

Likely biases in the Scottish data

Data used were self- or parent-reported usual mode of travel to school. Biases unclear.

Are trend data available?

Yes, from all data sources identified.

Are inequality data available?

Yes, from all data sources identified.

Major gaps in the Scottish data

Data sources considered active commuting among school age children and adolescents. Data on active commuting to nursery/pre-school were under-represented.

How to improve the data used to inform the card in future

Greater focus on pre-school children.

Greater focus on other forms of commuting transportation, not just the commute to and from school, in future Scottish surveillance¹⁴.

How to improve the grade in future

Active transportation is receiving increasing policy attention (see policy section below). Cycling is the subject of a specific Scottish government target and strategy¹⁸

The Active Healthy Kids Report Card Canada 2013¹⁴ had a focus on active transportation and contains many suggestions which should be generalisable to Scotland.

INC**Active and Outdoor Play**

- (INC, incomplete grade – available evidence and lack of a benchmark insufficient to assign a grade)

Recommendation or benchmark

There is no specific evidence-based recommendation for time spent in physically active play and/or play outdoors, but physically active play is important to child health and development. Systematic reviews have found that physically active and outdoor play contribute significantly to overall physical activity levels, particularly to MVPA, and probably also to the reduction of sedentary behaviour^{19,20}.

Main data sources considered

This health indicator concerns *participation* in physically active play and the use of outdoor space for play/physical activity.

The issue of *access* to outdoor space, and barriers to using it (e.g. perceived safety), is considered as a separate indicator, within the settings/influence domain below.

The SHeS provides an estimate of participation in outdoor play: 69% of 2-15 year olds were reported to have played outdoors in the past week in 2011; 57% were reported to have played outdoors for at least 5 occasions lasting at least 30 minutes in the past week in 2011.

Main data sources considered (cont)

The SHS²¹ provides data on self- and parent-reported active and outdoor play, but data are presented in aggregated form for 8-21 year olds. GUS⁵ provides parent-reported data on active and outdoor play among younger children, and the HBSC 2010³ provides data for adolescents. Both the GUS and HBSC data show that physically active play and time outdoors are highly seasonal.

Reasons for choice of data source used to assign the grade

Nationally representative data are available.

Multiple data sources are available, but assigning a grade is problematic in the absence of a specific recommendation for physically active or outdoor play.

Likely biases in the Scottish data

A high degree of seasonality in these behaviours means that care must be taken in assigning a grade where data are collected in summer or winter. SHeS data are free of this bias. Biases in self- or parent-report of outdoor play are unclear.

Are trend data available?

Yes, with all current data sources noted above.

Are inequality data available?

Yes, but note that some apparent socio-economic disparities derived from self or parent report of child physical activity are spurious and not confirmed by objective measures⁹.

Major gaps in the Scottish data

Objective measurement of frequency, intensity, and duration of physically active and outdoor play would be helpful.

How to improve the data used to inform the card in future

The existence of a specific evidence-based recommendation would be helpful, but this requires better evidence both on the accurate measurement of physically active and outdoor play, and on the health and other benefits of physically active and outdoor play.

How to improve the grade in future

Improving the F grades for sedentary behaviour and overall physical activity in this card will require greater emphasis on promotion of physically active and outdoor play, and greater use of outdoor space among older children and adolescents.

Parents, carers, health and educational professionals, and policy makers should continue to be informed of the many and varied benefits of active play, and the fact that there are benefits of play which are distinct from those which arise from organised sports and activities.

Parents, carers and education policy makers and professionals should be aware that not all injuries can be prevented, and most injuries which arise from active play might be considered acceptable because they are usually unintentional and usually minor.^{10,14}

Policies and practices which act as barriers to physically active and outdoor play should be examined in the light of the F grades for sedentary behaviour and physical activity in this report card.



- Participation in sport at least once in the previous week was reported for 69% of 2-15 year olds⁶. In the absence of a recommendation, and given the F grades for sedentary behaviour and physical activity, this is difficult to grade.

Recommendation or benchmark

There is no specific evidence-based recommendation for participation in organised sports and physical activities, but these behaviours have great potential to improve the F grades for sedentary behaviour and overall physical activity presented in this report card.

Main data sources considered

SHeS data were used.

SHS²¹ collects sports participation data every two years, but presents it aggregated for 8-21 year olds.

Sportscotland collects data on participation in sessions organised by Active Schools Co-ordinators.

Reasons for choice of data source used to assign the grade

Nationally representative data available.

Only 1 source of data was available for grading, from the SHeS⁶, because SHS information included adult data.

Likely biases in the Scottish data

Biases in self- and parent-reported participation in organised sports and physical activity are unclear.

Are trend data available?

Should be available in future from SHeS and possibly SHS.

Are inequality data available?

Should be available in future.

Major gaps in the Scottish data and how to improve the data used to inform the card in future.

Separate presentation of the child and adolescent data collected in the SHS would be helpful.

The grade in this card was based simply on reported participation. More research evidence on the contribution of sport and organised activities to overall MVPA and sedentary behaviour, and health outcomes (e.g. obesity) would be helpful in order to develop a recommendation upon which a grade would be based in future cards.

How to improve the grade in future

Coaches, teachers, and parents should consider the extent to which organised sports and physical activities might involve more MVPA, without compromising skill development.

How to improve the grade in future (cont)

More research evidence on how to increase participation in sport and organised activities, and how to increase MVPA in these activities, would be helpful in order to address the F grades for overall physical activity and sedentary behaviour contained in this report.

Relevant stakeholders should: examine the barriers to participation in organised sport and physical activity; consider how to reduce the dropout rate from organised sport and physical activity.

Particular attention should be paid to sub-groups of the population characterised by low participation/high dropout.



Diet



- Sugar* intake should not exceed 11% of energy intake²³. Sugar intake reached 15% of energy intake in 3-7 year olds, 16% in 8-11 year olds, and 17% in 12-16 year olds, increasing with increasing levels of deprivation²².
- Children and adolescents typically had 2 –3 portions of fruit and vegetables per day, and only 14% met the ‘5 a day’ recommendation^{Scottish Health Survey 2011}. Fruit and vegetable intake was lowest among more deprived children and adolescents^{Survey of Diet Among Children in Scotland 2010}.
- Average intake of saturated fat (13%) exceeded the 11% of energy intake recommended; average total fat intake as was 33% of energy intake which met the recommendation to not exceed 35% of energy intake²².

* Non-Milk Extrinsic Sugars

Recommendation or benchmark

The Scottish Dietary Targets²³ provide evidence-based recommendations for the intake of NMES, fruit and vegetables, saturated fat, and total fat.

Main data sources considered

Survey of Diet Among Children in Scotland 2010.²²; SHeS⁶.

Reasons for choice of data source used to assign the grade

Nationally representative data are available using accepted dietary assessment methods.

Likely biases in the Scottish data

As with all dietary data, biases in the assessment of dietary intake are likely, and these data may underestimate the intake of NMES and fat.

Since some recommendations are expressed in terms of % of dietary energy intake, adherence to one recommendation can affect another, e.g. adherence to the total fat intake recommendation may have been achieved on average by a high NMES intake.

Are trend data available?

Yes from SHeS. Trend data should be available from future Scottish dietary surveys.

Are inequality data available?

Yes. Dietary intakes of NMES and fruit and vegetables are strongly socially patterned (less healthy intakes in children and adolescents from more deprived families).

Major gaps in the Scottish data and how to improve the data used to inform the card in future

Current Scottish dietary data are adequate for public health surveillance and to assign a grade in this report card. Surveillance of the intakes of foods or drinks suggested as being particularly ‘obesogenic’ from systematic reviews^{4,24,25} such as sugar-sweetened beverages, would be useful.

How to improve the grade in future

Improving the diet of Scottish children and adolescents is a major policy priority for the Scottish government – See section on National Policy, Strategy, and Investment.



Obesity



- Multiple data sources suggest that levels of obesity among Scottish children and adolescents are higher than at any time in our history.
- Obesity prevalence among children and adolescents has more than trebled since 1990, and obesity is more common among the more deprived⁶.
- 21% of all children and adolescents had high waist circumference (at or above the 98th centile), and 31% of adolescent girls had high waist circumference²².

Recommendation or benchmark

There is no specific evidence-based recommendation for the expected prevalence of obesity, but there is an evidence based recommendation⁴ that prevalence estimates should be based on the measured body weight and height and interpreted using the BMI for age and sex, expressed relative to reference data from the UK in 1990 (by definition this sets ‘expected’ prevalence of obesity at 5% in 1990 and overweight, including obesity, at 15% in 1990).

Data sources considered

SHeS⁶; GUS⁵; routinely collected Scottish NHS data collated by Information and Statistics Division²⁶; Survey of Diet Among Scottish Children 2010²²

Reasons for choice of data source used to assign the grade

Nationally representative data available with measured weight and height used to calculate BMI.

Likely biases in the Scottish data

Systematic reviews^{4,27} have shown that BMI and waist circumference provide conservative estimates of the prevalence of obesity (excessive fatness). Both have a moderately high false negative rate (many children and adolescents who are excessively fat have an apparently healthy BMI). Scottish surveillance data are therefore underestimates of the scale of the problem.

Are trend data available?

Yes, from SHeS and GUS data, and from routinely collected health service data (ISD). Very large sample available with routinely collected data from ISD and this has advantages in terms of identifying trends and disparities by age, gender, ethnicity^{28,29}.

Are inequality data available ?

Yes, from the data sources referred to above.

Child and adolescent obesity are more common among more deprived families.

Major gaps in the Scottish data and how to improve the data used to inform the card in future.

Current Scottish surveillance using BMI is adequate.

Future addition of body fatness measures, in addition to the measurement of proxies for body fatness, could overcome the problem of the moderate false negative rate of BMI and waist circumference.

How to improve the grade in future

Obesity among children and young people is a major focus of Scottish government policy (see policy section below). Obesity prevalence may be levelling off among children and adolescents in Scotland, as in other western countries.

Scottish evidence-based recommendations on the prevention and management of obesity among children and adolescents are available in the relevant SIGN guideline.⁴

Settings and Influences on Physical Activity and Health



Family and Peer Influence



- 48% of adult men and 33% of adult women reported meeting the physical activity recommendation of 5x 30 minutes of moderate-vigorous intensity physical activity per week⁶.
- More than 28% of adults were obese and 64% either overweight or obese in 2011⁶.
- Only 22% of Scottish adults reported meeting the '5 a day' fruit and vegetable intake recommendation in 2011^{Scottish Health Survey 2011}, fruit and vegetable consumption is lower in the more deprived, and purchasing may have been declining recently³⁰.

Recommendation or benchmark

There is no specific recommendation for the family environment and peer influence, but recommendations (above) are available for physical activity levels of adults, and for fruit and vegetable consumption. Obesity in Scottish adults is at its highest level in our history.

Main data sources considered

SHeS data 2011 on obesity, self-reported physical activity, and fruit and vegetable consumption⁶.

Living Costs and Food Survey³⁰ on purchasing of fruit and vegetables.

Reasons for choice of data source used to assign the grade

Nationally representative data are available.

Likely biases in the Scottish data

Dietary data are self-reported and prone to biases which may underestimate the scale of non-adherence to dietary and nutrient recommendations and targets.

Obesity assessment using BMI provides a conservative estimate of obesity prevalence-as in children- there is a high false negative rate, particularly high in women.³¹

Adult physical activity levels are self reported and may be susceptible to bias (actual levels of physical activity may be even lower than reported).

Are trend data available?

Yes- from the data sources used.

Are inequality data available?

Yes-from the data sources used.

Major gaps in the Scottish data and how to improve the data used to inform the card in future

Current surveillance data are adequate to assess the family environment in which Scottish children and adolescents grow up, as represented by adult physical activity, adult diet, and adult obesity. All three environmental indicators are unfavourable to child physical activity and health.

Data on other indicators of the family environment, and of peer influence, would be helpful. More specific data on parental modelling of physical activity and support for physical activity would be useful: there are some Scottish data from GUS⁵ and more comprehensive data of this kind is included in surveillance in Canada.¹⁴

How to improve the grade in future

Scottish children and adolescents grow up in a family environment which is unfavourable for physical activity and health, and which encourages inequalities in health.

Improvements in adult physical activity, diet, and obesity are all major Scottish government policy targets (See section on National Policy, Strategy, and Investment). There is a good deal of scope for families to support physical activity and reduce sedentary behaviour in transportation, play, and organised sports and activities.

A systematic review concluded that family-based approaches to improving physical activity and health of children are promising³², but there is currently little evidence on how best to use a family approach to increase child physical activity and reduce child sedentary behaviour.


B

Community and the Built Environment

- This indicator refers to perceived safety, access, and availability of spaces and opportunities for physical activity, not the behaviour of actual use of outdoor space and physically active play, which is dealt with above.
- 77-81% of Scottish adolescents felt that it was 'always safe for children to play outside' and 51% agreed that they 'always felt safe locally'.³
- 77% of parents of 5 year olds agreed or strongly agreed that local outdoor space was safe for their children.⁵
- 88% of parents of under 5 year olds reported having access to a park or play area locally⁵ and 40-50% of households reported having access to a park or play area locally.

Recommendation or benchmark

There is no specific evidence-based recommendation, but perceived safety, access to and availability of spaces and opportunities for physical activity are probably important influences on overall physical activity¹⁴.

Main data sources considered

Perceived safety data are collected by the HBSC³, SHeS⁶, and GUS.⁵

Data on access to places for physical activity, and availability of facilities for physical activity are available from the SHS²¹, GUS⁵, and HBSC³.

Reasons for choice of data source used to assign the grade

Nationally representative data are available

Likely biases in the Scottish data

Biases in self reports of perceived safety, access to and availability of spaces and facilities of physical activity are unclear.

Are trend data available?

Yes, from the data sources referred to above

Are inequality data available?

Yes, from the data sources referred to above.

Major gaps in the Scottish data and how to improve the data used to inform the card in future

The Active Healthy Kids Canada Report Card¹⁴ is able to draw on survey data on the satisfaction which families perceive in relation to local, provincial, and national government policy and practice in relation to the promotion of physical activity. Information of this kind would be useful in Scotland.

How to improve the grade in future

This grade is higher than some others, suggesting that perceived safety of access to facilities may not be major barriers to physical activity. Nonetheless, improvements in perceived safety, access, and facilities may well produce improvements in physical activity and/or sedentary behaviour.

Issues such as perceived safety, access, and availability are the target of some national policy effort, and this is dealt with below.

More research is needed in order to understand why families appear to perceive reasonable levels of safety and access to facilities for physical activity but levels of physical activity are very low and levels of sedentary behaviour very high.



(Including School Policy and Investment)

- Physical activity and health in childhood and adolescence is the focus of many national policies in Scotland. Many of the Health Behaviours and Outcomes in the 2013 report card are the subject of national policies, investments, and or/targets.

Context

Scottish government policy on child and adolescent physical activity and health is expressed in several national outcomes and purpose targets including: our children should have the best start in life; improving the life chances of children and young people at risk; we should live longer healthier lives; we should tackle the significant health inequalities which exist in Scotland; increased use of public and active transport; increased physical activity^{www.scotland.gov.uk}.

Data sources considered

National Physical Activity Strategy
 Youth Sport Strategy
 Physical Education, Physical Activity and Sport in Schools
 Active Schools Programme
 Paths for All
 Active Girls
 Hungry for Success
 Schools (Health Promotion and Nutrition Act)
 Obesity Route Map
 HEAT 3 Targets
 Good Places and Better Health
 Scottish Planning Policy
 Scotland's National Food and Drink Policy 2009
 Healthy Living Award
 Healthy Living Programme
 Beyond the School Gate
 Take Life On
 Responsible Marketing of Food and Drink

Reasons for choice of data source used to assign the grade

All national level policies currently operational were eligible for inclusion: local policies could not be included because of time constraints.

Likely biases in the Scottish data

Implementation of some policies could not be ascertained; evaluation has not been carried out for most policies

Are trend data available?

The number of policies has increased in the last decade and a several new policies are underway or in preparation, e.g. Supporting Healthy Choices (a voluntary framework for food businesses).

Are inequality data available?

No policy is specifically designed to address socio-economic, ethnic or rural/urban disparities, though gender disparities are considered, and reducing inequality is increasingly being regarded as central to health policy.

Major gaps in the Scottish data and how to improve the data used to inform the card in future

No policy mentions reducing sedentary behaviour.

How to improve the grade in future

More evaluation evidence (process, outcome, economic) would be useful.

Active Healthy Kids Scotland Report Card – List of Stakeholders

Name	Organisation
Julie Armstrong	Glasgow Caledonian University
Emma Broadhurst	Fife Council
Kate Campbell	Sustrans Scotland
Michael Craig	NHS Health Scotland
Stuart Forsyth	University of Strathclyde
Jillian Galloway	NHS
Andrew Gasiorowski	NHS ISD
Mary Goad	British Heart Foundation National Centre for Physical Activity and Health
Adrienne Hughes	University of Strathclyde
Jo Inchley	University of St Andrews
Flora Jackson	NHS Health Scotland
Ann-Marie Knowles	University of Strathclyde
Benny Lawrie	Youth Sport Trust
Judith Mabelis	ScotCen Social Research
Donald MacLeod	Education Scotland
Diane McGrath	British Heart Foundation
Ruth McQuillan	University of Edinburgh
Victoria Milne	Scottish Government
Gillian Purdon	Food Standards Agency in Scotland
Julie Ramsay	Scottish Government
David Rowe	University of Strathclyde
Naveed Sattar	University of Glasgow
Kathryn Sharp	NHS GGC
Laura Stewart	NHS Tayside
Bruce Whyte	Glasgow Centre for Population Health
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Simon Williams	University of Glamorgan
David Williamson	sportscotland
Rachael Wood	NHS ISD

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