



FIT KIDS SURVEY

PRIMARY SCHOOLS IN CARRICKFERGUS, EDEN AND WHITEHEAD

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CONTEXT

Background context

In 2010 the Marmot Review was published following an independent review (led by Sir Michael Marmot) to propose the most effective evidence-based strategies for reducing health inequalities. Central to the content of the Review is that reducing health inequalities is “a matter of fairness and social justice”, and that health inequalities result from social inequalities. Marmot emphasised that action on health inequalities requires action across all the social determinants of health; which will only happen by empowering individuals and local communities. The Review highlights the need for action on six policy objectives, the first of which is to “give every child the best start in life”¹. Appendix One presents the nine key messages presented in the Marmot Review.

The National Institute for Health and Care Excellence (NICE) *Guidance on Community Engagement to improve health (PH9, 2009)* emphasises how active communities can have a positive impact on health outcomes by improving services and influencing the governance of health services.

All children are seen by the School Nurse for a health appraisal in P1 and Year 8, when their height and weight is measured. The most recent analysis (2013 – 2014) based on the data from the health appraisals show that 21.2% of children are overweight or obese when they start Primary School (5.5% are obese). When they move onto their first year in Post-Primary School, this figure has increased to 29% overweight and obese (7.64% are classified as obese)².

Data show that children in the Northern Trust area are the most overweight in comparison to the other five Health and Social Care Trust areas³. The table below provides comparisons between the Northern Trust area and Northern Ireland, and data for children living in the Carrickfergus area (which also takes in Greenisland and Whitehead).

Area	Underweight	Normal	Overweight	Obese
Northern Ireland	4.0%	74.8%	17.8%	5.5%
NHSCT	3.8%	72.9%	17.8%	5.5%
Carrickfergus LGD	4.8%	71.6%	15.5%	8.1%

¹ Fair Society, Healthy Lives: A Strategic Review of Health Inequalities in England Post-2010, February 2010

² Child Health System, 2015

³ Child Health System via PHA Health Intelligence Unit

The need to promote physical activity and healthier diet

Obesity levels among children are rising. One in three children in the UK is now overweight, while one in five is obese. Data show that even more children are overweight and obese at the end of primary school than at the beginning⁴. There has been a steady rise in the proportion of overweight children in the UK from 1994 to 2003, although in the past decade it has remained at about 30%.

Obese children often go on to be obese adults, carrying with them an increased risk of heart disease, type 2 diabetes, some cancers and infertility. The number of obese people in the UK has more than trebled in the past 25 years. Currently it is estimated that health problems associated with being overweight or obese cost the NHS more than £5bn every year.

University College London researchers have looked at data from more than 56,000 people born in Britain between 1946 and 2001. They found a clear shift over time, with obesity becoming more common and starting earlier in life⁵. The median age for becoming overweight for babies born in the 1970s was 41 years old, compared with 48 years for those born in 1946 and 44 years for those born in 1958. Children born since the 1980s were up to three times more likely than older generations to be overweight or obese by the age of 10. Latest figures for suggest that a fifth of children starting primary school are now obese or overweight. Recent data suggest that childhood obesity may now be stabilising among the under-10s; however, it is too early to say if this trend will continue.

Recent research in Ireland has reported that children as young as ten years old show evidence of Cardiovascular Disease risk factors⁶. In 2013 researchers from across the island said that public policies aimed at helping people to manage their obesity should place more focus on promoting physical activity alongside a healthier diet, and emphasise the positive benefits of a more active life and healthier diet⁷. In 2007 the National Centre for Health and Care Excellence (NICE) concluded that there is a strong rationale for promoting physical activity among children and adolescents; specific population sub-groups in which levels of activity are low include children from lower socio-economic groups, and overweight and obese children⁸.

The NHS UK Livewell recommends that to maintain a basic level of health, children and young people aged five to eighteen years old need to do at least 60 minutes of physical activity every day. Fruit and vegetable consumption decreases and sugar

⁴ <http://www.bbc.co.uk/news/health-31041864>: accessed 22.05.15

⁵ www.bbc.co.uk/news/health-32797769: accessed 20.05.15

⁶ Irish Medical Journal, January 2013

⁷ Institute of Public Health website

⁸ *Promoting physical activity for children: Review 1* The National Centre for Clinical Excellence (NICE), 2007

intake increases from affluent to disadvantaged social classes⁹ One strategy to prevent adult obesity is to focus attention on preventing obesity in children.¹⁰

The Report presented by the Commission on Ending Childhood Obesity (ECHO) to the World Health Organisation proposes a range of recommendations for governments aimed at reversing the rising trend of children aged under 5 years becoming overweight and obese. The report gives six main recommendations: promote the intake of healthy foods, promote physical activity, integrate and strengthen preconception and pregnancy care guidance, provide guidance on childhood diet and physical activity, implement comprehensive programmes that promote healthy school environments, and provide family based, multi-component, lifestyle weight management services for children and young people who are obese.

"Overweight and obesity impact on a child's quality of life, as they face a wide range of barriers, including physical, psychological and health consequences. We know that obesity can impact on educational attainment too and this, combined with the likelihood that they will remain obese into adulthood, poses major health and economic consequences for them, their families and society as a whole."

*WHO Commission on Ending Childhood Obesity (ECHO) Co-chair
Dr Sania Nishtar*

Overweight and Obesity in Northern Ireland

The Fitter Futures for All Framework¹¹ highlights that obesity continues to be one of the most important public health challenges across Northern Ireland. The Framework directs outcomes in relation to overweight and obesity through three life courses:

1. Pre-conception, antenatal, maternal and early years
2. Children and young people
3. Adults and general population

The Framework notes that a complex range of factors underpin energy intake and expenditure (weight gain is the result of energy imbalance), and that many wider determinants of poor health such as health inequalities, poverty, mental health,

⁹ Prescott-Clarke P, Primatesta P. *Health survey for England: The health of young people '95–97*. London: Joint Surveys Unit, 1998

¹⁰ Gable and Lutz, *Household, Parent, and Child Contributions to Childhood Obesity*, 2000

¹¹ Fitter Futures for All: Framework for Preventing and Addressing Overweight and Obesity in Northern Ireland 2012- 2022. DHSSPS, 2012

deprivation, and structural barriers also impact on obesity. The Framework aims to “empower the population of Northern Ireland to make healthy choices, reduce the risk of overweight and obesity related diseases and improve health and wellbeing, by creating an environment that supports and promotes a physically active lifestyle and a healthy diet”. The overarching targets for children are to reduce the level of obesity by 3% and overweight and obesity by 2% by 2022. Key Performance Indicators have been set to monitor and record progress in obesity prevalence, nutrition markers, and physical activity levels.

The Director of Public Health has stated “there is a need to develop effective and sustainable ways of helping young people choose a better diet. Schools can play a crucial role in improving the health of children and are a key setting for public health interventions”¹² Further information taken from research and policies relating to children’s physical activity and diet and nutrition is given at the end of this document.

The direct and indirect costs of overweight and obesity in Northern Ireland in 2009 amounted to £369,799,820¹³.

Mid and East Antrim Borough Council

For the past three years Mid and East Antrim Borough Council has been working in partnership with the Northern Health and Social Care Trust to develop and deliver the Hearty Lives Carrickfergus project across the Carrickfergus, Whitehead and Greenisland areas. The project, which focuses on obesity and promoting heart health, is funded by the British Heart Foundation. One of the core target groups is families with babies and children up to four years of age.

The Council learnt about the Fit Kids Survey, which has been administered in Primary Schools across Belfast, and believed that it would be beneficial to collect data about children’s levels of physical activity, and their eating habits and choices borough-wide. Thirteen Primary Schools in Carrickfergus, Eden, Greenisland and Whitehead were invited to take part in the Fit Kids Survey. Ten Primary Schools chose to be involved, and 1000 children completed the Fit Kids Survey during February and March 2015.

¹² Director of Public Health, Annual Report, HSC, Public Health Agency, 2011

¹³ Safefood: The cost of overweight and obesity on the Island of Ireland, 2009

THE FIT KIDS SURVEY

The Fit Kids survey data provides a snapshot of the food children eat and other dietary behaviours, and the extent to which they participate in different kinds of physical activity. The survey is divided into two sections – Diet and Nutrition and Physical Activity. The baseline data may also be used to compare changes in diet and physical activity as a result of interventions.

Effective approaches to help improve children's health-related behaviours are needed. A Cochrane review¹⁴ identified that school-based, multi-component interventions to modify diet and physical activity behaviours, are likely to be effective in preventing obesity. A further review¹⁵ found that school-based interventions are effective in increasing duration of physical activity and fitness. Taking this into account, the opportunity to collect baseline data focusing on the diet and physical activity behaviours of Primary School children could inform schools, the community, statutory agencies, and decision makers. Furthermore, such baseline data can inform the development of relevant programmes in and out of school.

A protocol for the administration of the Survey was drawn up, which was followed by the Council team administering the survey across the Primary Schools. This approach ensured that every class of pupils was given the same information about why they were completing the survey, that the children were aware that there were no 'right or wrong' answers, and that it was not a competition to see who could complete the survey first. When administering the survey each question was read out, followed by the instruction (for example tick only on box, or tick as many boxes as apply to you), and then all the options in answer to each question were read out.

The Fit Kids survey was administered with 1000 children attending ten Primary Schools in Carrickfergus and Whitehead in P4, P5, and P6 (aged seven to ten years old) in February and March 2015. Principals at each participating Primary School received a shorter Report, presenting the data for pupils attending their School.

509 girls and 488 boys completed the Survey (3 pupils did not provide information about their gender). 305 children were in P4, 348 children were in P5, and 345 children were in P6.

¹⁴ Waters E, de Silva-Sanigorski A, Burford BJ, et al.. Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews* 2011, Issue 12. Art. No.: CD001871. DOI: 10.1002/14651858.CD001871.pub3.

¹⁵ Dobbins M, Husson H, DeCorby K, LaRocca RL. School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6 to 18. *Cochrane Database of Systematic Reviews* 2013, Issue 2. Art. No.: CD007651. DOI: 10.1002/14651858.CD007651.pub2.

DIET AND NUTRITION

In Northern Ireland, over one in five children starting Primary School is overweight. The initial findings of the Health Survey Northern Ireland 2013/14¹⁶ show that three-quarters of children aged two to ten years old were classed as either normal weight or underweight, while 18% were classed as overweight and 7% were classed as obese. The proportion of children classified as either overweight or obese has not changed since 2005/06.

The NI Framework for Preventing and Addressing Overweight and Obesityⁱ highlights that obesity continues to be one of the most important public health challenges across Northern Ireland. Obesity has an impact on physical and emotional wellbeing, and the number of people who are overweight and obese has been rising throughout the western world for several decades. Although data from the most recent survey shows levels of obesity have not increased for children or adults since the 2005/06 Survey findings, neither have they decreased.

Less than 20% of children in the UK eat their '5 a day' (i.e. 5 portions of fruit and vegetables) and there is increasing health inequality, with greater prevalence of unhealthy lifestyle behaviours^{17,18} and associated obesity, with its long-term adverse health consequences,^{19,20} in areas of disadvantage. Recent reports indicate that fruit and vegetable consumption in Northern Ireland is lower than in the UK as a whole: between 2008 and 2012 only 4% of children aged 11 to 18 years met the "5-a-day" recommendation, although consumption was higher amongst those with less socio-economic disadvantage.²¹

¹⁶ Framework for Preventing and Addressing Overweight and Obesity in Northern Ireland 2012-2022, Department of Health, Social Services, and Public Safety

¹⁷ Buck D, Frosini F. Clustering of unhealthy behaviours over time: implications for policy and practice King's Fund. August 2012 http://www.kingsfund.org.uk/sites/files/kf/field/publication_file/clustering-of-unhealthy-behaviours-over-time-aug-2012.pdf. Accessed 18/04/15

¹⁸ National Diet and Nutrition Survey Results from Years 1, 2, 3 and 4 (combined) of the Rolling Programme (2008/2009 – 2011/2012). A survey carried out on behalf of Public Health England and the Food Standards Agency. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310995/NDNS_Y1_to_4_UK_report.pdf. Accessed 02/03/2015

¹⁹ Juonala, M, Magnussen CG., Berenson, GS, Venn A, Burns TL, Sabin MA, et al. (2011). Childhood adiposity, adult adiposity and cardiovascular risk factors. *New England Journal of Medicine* 2011;365(20):1876-1885.

²⁰ Lakshman R, Elks CE, Ong KK. Childhood Obesity. *Circulation*. 2012 Oct 2;126(14):1770-9. doi: 10.1161/CIRCULATIONAHA.111.047738.

Kriemler S, Zahner L, Schindler C, et al. Effect of school based physical activity programme (KISS) on fitness and adiposity in primary schoolchildren: cluster randomised controlled trial. *BMJ* 2010;340:c785

²¹ National Diet and Nutrition Survey Rolling Programme (NDNS RP) Results from Years 1-4 (combined) for Northern Ireland (2008/09-2011/12). A survey carried out on behalf of the Food Standards Agency in Northern Ireland and Public Health England. <http://www.food.gov.uk/sites/default/files/ndns-ni-full-report.pdf>. Accessed 17/03/2015

Diet and Nutrition Data Highlights

The questions asked in the Fit Kids Survey about diet and nutrition addressed the different meals that children eat during a typical school day, ie breakfast, lunch and tea; and also included school morning break and whether they have anything to eat or drink before they go to bed. It also specifically asked the number of portions of fruit and vegetables that children eat, and their attitudes to fruit and vegetables. The survey also tried to get a picture of the number of times during a week that children eat specific kinds of food. Finally, this section touched on oral hygiene, with a question about brushing teeth.

Breakfast

According to a 2005 study published in "Physiology and Behavior," eating a healthy breakfast in the morning has beneficial effects on memory -- particularly short-term -- and attention, allowing children to more quickly and accurately retrieve information. Children who eat breakfast perform better on reading, arithmetic and problem-solving tests. Eating breakfast also positively affects endurance and creativity in the classroom.²²

Answer Options	Response Percent	Response Count
I never eat breakfast on school days	4.4%	44
I have breakfast on most school days	19.0%	188
I have breakfast every school day	76.6%	758
<i>answered question</i>		990
<i>skipped question</i>		10

The data show that 4.4% of children in the Primary Schools that participated in the Fit Kids Survey reported that they never eat breakfast on a school day.

Breakfast provides the ideal opportunity for children to take in plenty of the essential nutrients that the body needs each day Children need to eat breakfast to end the night-time fast, replacing some of the glycogen stores and raising blood sugar levels (which tend to drop overnight and can be low on waking), allowing children to function more effectively and providing energy for the morning's activities²³. This is particularly important for sustained mental work²⁴ (including memory and concentration) over the morning, and muscles for physical activity.

²² <http://healthyeating.sfgate.com/eating-breakfast-affect-childrens-learning-5275.html>: accessed 22.05.15

²³ Waggoner, A. (2002). Breakfast consumption and student achievement prior to lunch. Dissertation abstracts International: Section B: the Sciences and Engineering, 62 (9-B), 3975, US: Univ Microfilms International

²⁴ Wesnes, K. A., Pincock, C., Richardson, D., Helm, G. and Hails, S. (2003). Breakfast reduces declines in attention and memory over the morning in schoolchildren. *Appetite*, 41(3), 329-331.

Break Time in School

It was noted that the majority of Primary Schools have a 'Healthy Break policy'. Just over 50% of children (498) said they eat fruit at Break; and almost one third (307) reported that they drink water. 176 children (18%) reported eating sweets or chocolate biscuits at Break time; and 132 (13.5%) had a packet of crisps.

Lunches on School Days

41% (409) children eat School dinners; with everyone else, apart from 2 children, bringing in a Packed Lunch. The four most frequently mentioned items that children who brought in a Packed Lunch ate were (in order of popularity) sandwiches (eaten by over half the children), fruit, yoghurt, and crisps. Water was the most frequently mentioned drink.

Dinner / Tea Time

Chicken was mentioned by almost one third of the pupils, which at first glance may seem to be positive (as white meat is generally viewed as being healthier than red meat). However, when the children were completing the survey the comments noted about the type of chicken that they ate indicated that this would be chicken nuggets, chicken burgers or other kinds of processed chicken (as opposed to fresh chicken meat). A quarter of the children had chips the day before they completed the Survey, and just under one fifth of the children reported eating vegetables with their meal the evening before. 18% had a fizzy drink with their meal, and a similar percentage drank water. 16% had a take-away meal.

Bed Time Snacks

Over three quarters of children (77.2%) reported having something to eat before they went to bed. Various websites and other research papers discuss the benefits and disadvantages of eating before bedtime. Late night snacks that are high in calories and low in nutrition (such as chips) can cause overeating. According to Eileen Behan, author of "Fit Kids: Raising Physically and Emotionally Strong Kids With Real Food," late night snacks are one of the main contributors to overweight and obese adults. However, if children eat dinner early, feeding them a late night snack can help curb hunger through the night; but it is essential to offer low-calorie foods that do not put him over his caloric limit for the day²⁵.

²⁵ www.livestrong.com/article/417617-healthy-kids-late-night-snacks/: accessed 22.05.15

The most frequently mentioned bedtime snacks were toast, biscuits or a bun, and cereal. Almost one quarter of children had a glass of milk before going to bed, and a similar number drank water.

Fruit and vegetables (excluding potatoes)

Children were advised that a portion of fruit is that which they can hold in a cupped hand, so it could be a medium sized apple, about six grapes or a big spoon of peas or sweetcorn (this definition was previously given to those administering the Survey by the Health and Lifestyle Facilitator from the BHSCT Health Improvement Team). Almost three quarters of the children ate four or less portions of fruit and vegetables; with 89 children saying they did not have any fruit or vegetables the previous day. Just under two thirds (620) children knew that they should eat five portions of fruit and vegetables a day.

In February 2015 the Food Standards Agency reported that just four per cent of young people in Northern Ireland are eating enough fruit and vegetables²⁶. The Report also highlighted that the lowest income group had lower fruit and vegetable consumption than those with the most money; they also had lower intakes of starch and some vitamins and minerals²⁷. Whilst this data refers to children aged 11 – 18 years old; the data has relevance to Primary School pupils.

Data show that children prefer eating fruit to vegetables; 669 children said that they like eating fruit; and 414 children said that they like eating vegetables.

Oral Hygiene

The World Health Organization says oral health is integral to overall health and essential for wellbeing. Good oral health 'enables an individual to eat, speak and socialise without active disease, discomfort or embarrassment'. Poor oral health in children can cause pain and infection, absence from school, and hospital admissions²⁸, and can lead to subsequent problems in adulthood. Gum-disease is one of the risk factors that affects heart health and other chronic diseases.

60.2% (598) of the children said they brush their teeth twice a day; with a further 19.6% saying they brush their teeth more than twice a day. 14 children said they never brush their teeth.

²⁶ Food Standards Agency in Northern Ireland and the Department of Health, February 2015

²⁷ www.newsletter.co.uk/news/health/just-4pc-of-young-people-in-ni-are-eating-their-five-a-day-1-6578165: accessed 22.02.15

²⁸ The State of Children's Oral Health in England, RCS Faculty of Dental Surgery, January 2015

PHYSICAL ACTIVITY

Public health guidelines, endorsed by the Chief Medical officer, suggest that all children aged between five and eighteen years old should spend an hour a day engaging in physical activity. Boreham and Riddoch²⁹ highlight three main benefits from adequate childhood physical activity:

1. Direct improvements in childhood health status; evidence is accumulating that more active children generally display healthier cardiovascular profiles, are leaner and develop higher peak bone masses than their less active counterparts.
2. A biological carryover effect into adulthood, whereby improved adult health status results from childhood physical activity. In particular, childhood obesity may be a precursor for a range of adverse health effects in adulthood, while higher bone masses in young people reduce the risk of osteoporosis in old age.
3. A behavioural carryover into adulthood, whereby active children are more likely to become more active (healthy) adults.

Mid and East Antrim Borough Council offers a range of Leisure Services, including activities for children. The Councils' activity offering is based on the LISPA Model (Lifelong Involvement in Sport and Physical Activity). The Lifelong Involvement in Sport and Physical Activity (LISPA) model is a systematic approach that will assist in creating an environment that enables participants to achieve their optimum potential. By learning the fundamentals of movement and developing a positive attitude to sport and physical activity, people are provided with a pathway to continue lifelong involvement in sport and physical activity.

Council run activities range from seasonal schemes (summer, Halloween and winter) to sport workshops. In addition to these programmes Carrickfergus Leisure Centre offers other physical sessions, and health and wellness programmes. Council staff work with primary and post primary schools, local junior sport clubs and community groups and associations to deliver these programmes.

Public health guidelines, endorsed by the Chief Medical Officer, suggest that all children aged between five and eighteen years old should spend an hour a day engaging in physical activity. Approximately 50% of children aged 7 to 8 years old, in the UK, achieve the recommendation that they should take an hour a day of moderate to vigorous physical activity (MVPA) and fewer (43.4%) do so in Northern Ireland (NI), compared to England, Wales and Scotland³⁰.

²⁹ Colin Boreham and Chris Riddoch, *The physical activity, fitness and health of children*, Taylor and Francis Online, 2010

³⁰ Griffiths LJ, Cortina-Borja M, Sera F, et al. How active are our children? Findings from the Millennium Cohort Study. *BMJ Open* 2013;3:e002893.doi:10.1136/bmjopen-2013-002893

Physical Activity Data Highlights

The questions in the Physical Activity section of the Fit Kids Survey asked the children about how they get to and from School, physical activity in and out of School, and the extent to which they enjoy being physically active.

Going to and from School

About two-fifths of the children walk to and from School (413, and 419 respectively). Over half the children come to and go from school in a car.

Break Time and Lunch Break at School

The majority of Primary Schools have a school policy that all pupils go out to play at Break Time and Lunch Time at School.

84% of pupils said that they play running games during School Breaks. About one third reported that they play football, and 22% play skipping games. Over one third reported that they 'sit around talking'.

PE and Sports at school

Physical Education (PE) is a compulsory part of the curriculum for all pupils at every Key Stage, from age 4 to 16. It is up to schools to determine how much time is devoted to PE in the curriculum but Departmental guidance recommends that they should provide pupils with a minimum of 2 hours curricular PE per week³¹. However, it became evident during the Fit Kids Survey that many Primary Schools offer only one PE lesson during the school week. Furthermore, anecdotally Schools reported that when approached by external organisations to deliver a programme of physical activity in the School that this coaching takes place during the time usually allocated to the PE lesson; or after School (when it is an optional activity).

Two thirds of the children (660) said that they always enjoy PE lessons in School; with only 23 saying that they 'hardly ever' enjoy PE Lessons.

Data analysis showed that more children participate in sports clubs and teams outside of school than during school hours. 465 children (46.7%) belong to a sports club or team in School. 579 children (57.9%) belong to a sports club or are part of a sports team outside School.

³¹ www.deni.gov.uk/index/curriculum-and-learningt-new/curriculum-and-assessment-2/80-statutory-curriculum/physical-education-2.htm: accessed 22.05.15

Physical activities and sports that children did the previous week in their free time (i.e. after school or at the weekend)

The most frequently given responses (in descending order) were football, swimming, walking, cycling, and active games (such as chase and skipping).

How Much Physical Activity Children Do

The Survey asked the pupils which days in the previous week they had done any activities that made you warm up and get out of breath (like playing, sports, dancing or PE). Pupils at all the Primary Schools participate in PE lessons (including games and swimming) for one hour a week.

As noted previously, public health and the Chief Medical officer guidelines are that all children participate in physical activity or exercise for at least sixty minutes, seven days a week. As the table shows, 21.3% of children at Primary Schools in Carrickfergus, Eden, and Whitehead are meeting the recommended target in relation to physical activity. 41.4% of children are engaging physical activity three days a week or less.

40.5% said that when they do physical activity it is for about an hour a day. It was noted during the data collation that the children who engaged in physical activity on three or more days a week also spent longer doing the activity (ie more than one hour).

How much children enjoy being physically active

79.9% (793) of children say that they enjoy being physically active 'a lot'. However, as noted previously, 41.4% are participating in physical activities and exercise three days a week or less. Only 3.7% (37) said they do not enjoy being physically active very much, and 14 said they don't like being physically active at all.

This suggests that for whatever reasons (and these may include for example a lack of resources, a lack of local opportunities, lack of parental time, and the effort required to encourage children to 'go and do something active'), although children say they like being physically active, that it is not happening in practice.

These data also raise the question – if there were more opportunities available in and out of school for children to participate in physical activity and exercise would children choose to or be able to be involved?

WATCHING TELEVISION AND PLAYING ON A GAMES CONSOLE

46.7 children watched television or played on computer / X-Box (or similar games) one hour or less the previous day; with a further 6% saying they did not do any 'screen-time' activities. 115 children (11.6%) said they had six hours or more in front of televisions, computers, or X-boxes the previous day.

The amount of screen-time increased on Saturdays and Sundays; with 26.7% (264, over a quarter of the children) saying they watch television or play on computer / X-Box (or similar games) on weekend days.

Screen-time takes into account the use of anything that has a screen – TVs, mobile phones, games consoles and tablets. Public Health England reported in 2013 that too much time in front of TV and computer screens is causing increasing psychological problems, such as depression and anxiety, in children. The report suggested that the amount of time spent playing computer games was negatively associated with wellbeing in children, ie their general mental and physical health, resilience and the extent to which they are happy or worry about different aspects of their lives. The effects, particularly on mental health, were most pronounced for those children who spent more than four hours a day using some sort of screen-based technology. The Report also suggests that there is a significant association between viewing TV for more than three hours per day and conduct disorder³².

Research into the long-term effects of screen time is still relatively young. Research³³ suggests that many children suffer from sensory overload, lack of restorative sleep, lack the ability to pay attention, and have a hyper-aroused nervous system as a consequence of 'electronic screen syndrome'. Furthermore, much screen material is not well designed for developing children's cognitive processes (for example games that may be attention grabbing, do not help 'processing'). Too much screen-time can reduce children's capacity to develop empathy and compassion for others, and their ability to integrate physical signals with emotion; this in turn could impact on the depth and quality of personal relationships.

Excessive screen-time appears to impair brain structure and function. Multiple studies have shown atrophy (shrinkage or loss of tissue volume) in gray matter areas (where processing occurs) as a result of excessive screen time. The US Pediatric Association has recommended children have no more than one or two hour's screen-time a day.

³² How Healthy Behaviour Supports Children's Wellbeing, Public Health England, August 2013

³³ Victoria L. Dunckley, *Gray Matters: Too Much Screen Time Damages the Brain*: Neuroimaging research shows excessive screen time damages the brain. *Mental Wealth*, February 2014

APPENDIX ONE

THE NINE KEY MESSAGES FROM THE MARMOT REVIEW

In February 2010 the report "Fair Society, Healthy Lives: A Strategic Review of Health Inequalities in England Post-2010" was published.

The report included nine key messages:

1. Reducing health inequalities is a matter of fairness and social justice. In England, the many people who are currently dying prematurely each year as a result of health inequalities would otherwise have enjoyed, in total, between 1.3 and 2.5 million extra years of life.
2. There is a social gradient in health – the lower a person's social position, the worse his or her health. Action should focus on reducing the gradient in health.
3. Health inequalities result from social inequalities. Action on health inequalities requires action across all the social determinants of health.
4. Focusing solely on the most disadvantaged will not reduce health inequalities sufficiently. To reduce the steepness of the social gradient in health, actions must be universal, but with a scale and intensity that is proportionate to the level of disadvantage. We call this proportionate universalism.
5. Action taken to reduce health inequalities will benefit society in many ways. It will have economic benefits in reducing losses from illness associated with health inequalities. These currently account for productivity losses, reduced tax revenue, higher welfare payments and increased treatment costs.
6. Economic growth is not the most important measure of our country's success. The fair distribution of health, well-being and sustainability are important social goals. Tackling social inequalities in health and tackling climate change must go together.
7. Reducing health inequalities will require action on six policy objectives:
 - Give every child the best start in life
 - Enable all children, young people and adults to maximise their capabilities and have control over their lives
 - Create fair employment and good work for all
 - Ensure healthy standard of living for all
 - Create and develop healthy and sustainable places and communities
 - Strengthen the role and impact of ill-health prevention.
8. Delivering these policy objectives will require action by central and local government, the NHS, the third and private sectors and community groups. National policies will not work without effective local delivery systems focused on health equity in all policies.
9. Effective local delivery requires effective participatory decision-making at local level. This can only happen by empowering individuals and local communities.

APPENDIX TWO

PARTICIPATING PRIMARY SCHOOLS

The table below shows the Primary Schools participating in the Fit Kids Survey and the number of pupils in each School.

Primary Schools	No. of Pupils			
	P4	P5	P6	Total
Acorn Primary School	24	27	27	78
Central Primary School	8	12	11	31
Eden Primary School	31	28	27	86
Oakfield Primary School	40	43	38	121
St. Nicholas Primary School	22	21	29	72
Sunnylands Primary School	18	24	17	59
Victoria Primary School	51	65	77	193
Whitehead Primary School	48	59	57	164
Woodburn Primary School	29	24	27	80
Woodlawn Primary School	29	44	31	104
Total	300	347	341	988

We would like to thank the Primary School Principals for the cooperation given in enabling the Survey to be carried out in the Schools, and of the support given by teaching staff and classroom assistants during the Survey administration.

If you would like to see a copy of the Fit Kids Survey, a copy of the full Fit Kids Report, or if you are interested in administering the Fit Kids Survey in one or more Primary Schools or Youth Groups please contact:

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