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## Knowledge Exchange Seminar Series (KESS)

**Teenage girls heading for a lifetime of ill-health.**

**Using the school environment to enhance health-related behaviours:  
shared experiences and suggested future approaches**

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Dr Angela Carlin

Centre for Physical Activity & Health Research, Sport and Exercise Sciences Research Institute

Professor Alison Gallagher

Nutrition Innovation Centre for Food and Health, Biomedical Sciences Research Institute

Professor Marie Murphy

Centre for Physical Activity & Health Research, Sport and Exercise Sciences Research Institute

Ulster University

### **Introduction**

The aims of this policy briefing are:

1. To establish the health case for promoting physical activity, healthy eating and other positive health-related behaviours in adolescent girls
2. To examine the school-setting and its role in the promotion of positive health-related behaviours in adolescent girls
3. To share examples of recent interventions targeted at promoting positive health-related behaviours in this population and suggest future approaches

## The health case

Participation in physical activity is associated with many health benefits. Regular physical activity has been shown to be effective in the primary and secondary prevention of a number of chronic diseases, including diabetes, cancer, cardiovascular disease, depression, hypertension, obesity and osteoporosis.<sup>1</sup> Within the UK, children and adolescents (aged 5-18 years) are currently recommended to take part in at least 60 minutes per day of moderate-to-vigorous physical activity.<sup>2</sup> Across the UK, only half of 7 year olds (50.8%) were achieving the recommended 60 minutes per day.<sup>3</sup> Comparing countries within the UK, children in Northern Ireland were least likely to meet the recommendations, with only 43.4% of children here achieving 60 minutes of moderate-to-vigorous physical activity.<sup>3</sup>

Recent findings from the Northern Ireland Health Survey (2016/2017) highlighted that 17% of children aged 2- 15 years were classed as overweight and 8% were classed as obese.<sup>4</sup> Evidence has shown that those children and adolescents who are overweight/obese are at increased risk of becoming overweight adults.<sup>5</sup> The tracking of other health-related behaviours, for example, food choice behaviours, physical activity and smoking throughout adolescence is also well established.<sup>6</sup> Given the observed tracking of behaviours established in youth into adulthood, adolescence represents a key period for the promotion of health related behaviours.

With evidence highlighting the innumerable benefits of physical activity for general health and wellbeing, in addition to its role in energy balance, the promotion of physical activity-related behaviours in this population is pertinent.

## Health-related behaviours of teenagers in Northern Ireland

The Young Persons' Behaviour and Attitude Survey provides an overview of the health-related behaviours of young people (aged 11-16 years) living in Northern Ireland. Within the most recent round of the survey, conducted in 2016, the majority of young people classed their overall health as 'Good' or 'Very Good' (84%).<sup>7</sup> The findings also highlighted a number of positive trends amongst our youth in relation to negative health-related behaviours, with trends in the incidence of smoking and alcohol use showing a continued decline since 2000.<sup>7</sup> However, other health-related behaviours have continued to be a cause for concern. With regards healthy eating, less than one fifth of young people (17%) reporting consuming at least 5 portions of fruit and vegetables per day.

Of particular concern are the low levels of physical activity observed in our youth, particularly in adolescent girls. Whilst only 1 in 8 young people in Northern Ireland reported achieving the recommended 60 minutes of moderate physical activity during every day of the last week,<sup>7</sup> boys were twice as likely to meet these guidelines (17%) compared with girls of the same age (8%).<sup>7</sup> The observed gender differences in physical activity levels from the Young Persons' Behaviour and Attitudes Survey are consistent with findings worldwide, with girls participating in less overall physical activity and less sport than boys. Data from a previous version of the Young Persons' Behaviour and Attitudes Survey also highlighted that enjoyment of physical activity tends to decline with age amongst our youth; 78% of children aged 12 years and under reported enjoying sport or physical activity compared with just 54% of those aged 15 years and older.<sup>8</sup> This decline in enjoyment was strongly driven by the low levels of enjoyment reported by older girls in particular.

Evidence has also highlighted that teenage girls who are overweight or obese participate in less physical activity than those of normal/healthy weight.<sup>9</sup> The promotion of positive health-related behaviours, including healthy eating and physical activity, in this population is therefore key, particularly amongst females given the observed gender differences.

### **Correlates, motives and barriers for health in teenage girls**

A number of factors have been identified as influencing healthy eating behaviours amongst teenage girls, including taste preference, parental modelling and the provision of healthy food within the school setting.<sup>10</sup> Studies have also identified the influence of friends' eating behaviours on food choice and preference amongst adolescents.<sup>10</sup> Qualitative work undertaken with schoolchildren in Northern Ireland and England identified a number of barriers and motivations to healthy eating.<sup>11</sup> Factors such as taste, appearance, choice, availability and body weight concerns were identified as barriers to healthy eating amongst 11-12 year old boys and girls. Gender differences were observed within the responses in relation to motivations, with girls more likely to cite appearance as a motivation for healthy eating whereas boys were more likely to focus on the influence of sport in motivating them to eat healthily.<sup>11</sup>

In relation to physical activity, support from friends and significant others, for example, parents, has been shown to be positively correlated with physical activity in adolescents. Given the observed gender differences in physical activity levels, research has focused on understanding the reasons why girls are less active than boys and how best we can promote physical activity within this population. Previous work by our research group has identified a number of key influences on physical activity participation amongst young people in Northern Ireland.<sup>12</sup> These included the influence of friends and peers on physical activity, both positively and negatively. In addition, the influence of family members and the consequences of not taking part were cited as factors that would encourage them to be more active. A number of barriers were identified by participants, including cost and access to resources, and their changing priorities, as many had recently transitioned from primary to post-primary education and felt this had an impact on their physical activity levels.<sup>12</sup> With regards to how best to promote physical activity in this age group, a number of factors were discussed, including providing more opportunities to be active with friends and increasing the provision of 'non-traditional' types of physical activity within the school setting.<sup>12</sup>

The qualitative research undertaken to date in this population provides a key insight for policy makers, researchers and practitioners on how best to promote health behaviours in this population, as well as identifying barriers and facilitators that can inform the content of future interventions.

### **School environment for promoting health-related behaviours**

Aside from the home environment, children and adolescents spend more time in school than in any other setting. As such, schools represent a key environment for promoting health related behaviours. Additionally, the use of the school-setting to promote health-related behaviours has the potential to overcome health inequalities, as all children and adolescents are able to participate irrespective of socioeconomic status. Reviews examining the effectiveness of school-based interventions on physical activity levels have confirmed that high quality interventions can increase physical activity in children and adolescents.<sup>13</sup> With regard to the additional impact of including nutritional components, a review of European studies concluded that the most successful and relevant effects were observed in school-based studies that encompassed both sides of the energy balance equation.<sup>14</sup> However, less is known about the feasibility of implementing such interventions within schools, for example in relation to constraints of time, cost and resources. It is important that such issues be considered when evaluating the evidence-base for school-based health interventions.

## Promoting physical activity and reducing sedentary behaviour in teenage girls

### The WISH study

Based on qualitative work undertaken in adolescent girls, our research group developed and implemented a peer-led school-based brisk walking intervention, the **Walking In ScHools (WISH)** study, aimed at increasing levels of physical activity and reducing sedentary behaviour in adolescent girls.<sup>15</sup> The WISH intervention recruited 199 female participants, aged 11-13 years, from 6 post-primary schools across Northern Ireland. The study assessed the impact of the intervention on physical activity levels amongst participants and collected information on a range of other outcome measures, including health-related outcomes and qualitative information on the acceptability and practical aspects of the intervention.

The WISH study was delivered over a 12-week period (March to June 2014) to participants attending schools randomly allocated to receive the intervention. Participants were provided with the opportunity to attend a number of structured 10–15 min walks spread across the school week before the first 'bell', at mid-morning break and at lunch time. These peer-led walks were led by older pupils (aged 15–17 years) trained as walk leaders. Participants were provided with timetables of the planned group walks and given weekly verbal reminders to attend the walking sessions from school staff and walk leaders. Participants were also provided with prompt cards from the research team containing general tips and advice in relation to brisk walking and information on setting goals. To encourage adherence to the intervention, each participant was provided with a 'reward card', which was stamped by a walk leader each time they completed a walk. Participants were able to accumulate stamps for each completed walk and once reward cards were completed (indicating attendance at six walking sessions), participants were entered into a draw to win small tokens, e.g. cinema vouchers, water bottles and stationery.

The WISH study resulted in increased levels of light intensity physical activity across the school day by approximately 8 minutes/day and reduced levels of sedentary behaviour amongst adolescent girls.<sup>15</sup> Furthermore, this novel low-cost intervention demonstrated that a school-based brisk walking intervention was feasible and positively changed physical activity behaviour in the short-term. Further research is now needed to evaluate the potential of school-based brisk walking to contribute to meeting the physical activity guidelines in adolescent girls.

Following completion of the intervention, a number of focus groups were conducted to evaluate the experiences of participants. A number of key themes emerged in relation to the role schools could play in helping teenage girls become more physically active. Participants themselves felt that schools provided an ideal location where they could be more active, given the proportion of time that they spent within the school setting. Girls also highlighted the challenges of trying to be active within the school setting, and felt they were disadvantaged when it came to the provision of extra-curricular sporting options, which were targeted at boys primarily. With regards to being involved in the research study, participants noted that the brisk walking intervention (WISH) was appealing because it offered the girls a chance to be 'sporty' or active. Participants enjoyed the convenience of walking as an activity and the social opportunities the intervention provided. Some participants noted that the older walk leaders could be off-putting and highlighted that they would prefer to have their own classmates or peers leading the walks.

## Practical considerations

While evidence has highlighted the importance of a whole school approach to the promotion of physical activity, the onus for further promoting physical activity within the school environment generally falls to physical education teachers and the physical education curriculum.<sup>16</sup> A survey of sport provision in post-primary schools in Northern Ireland assessed the amount of time devoted to curricular physical education on a weekly basis, and found that only 9% of participating post-primary schools delivered the recommended 2 hours or more each week of physical education.<sup>17</sup> Given the limited time available for physical education, and the fact that time spent in physical education decreases as adolescents move through post-primary education,<sup>16</sup> it is important to look towards other opportunities within the school environment to promote physical activity and being physically active during the school-day.

In order to assess the feasibility of delivering interventions, such as the WISH study, routinely within the school setting we developed an online survey to assess the provision of existing extra-curricular activities within schools and to evaluate the potential of schools to further promote physical activity outside of structured physical education. A total of 59 post primary schools completed the survey (28.4% response rate). All female-only schools and mixed-gender schools stated that they offered extra-curricular activities on a regular basis to female pupils aged 11-14 years. After-school was the most popular time for extra-curricular activities to be offered within schools (89.9% of responding schools).

Specialist staff (i.e. PE teachers) were tasked with the implementation of extra-curricular activities across all responding schools. Non-specialist staff (i.e. non-PE teachers) were also responsible for the implementation in over half of responding schools (55.9%). Team training, for selected pupils only, was the most commonly offered extra-curricular activity (94.9% of responding schools). School who responded to the online survey, identified staffing as the main barrier to the provision of extra-curricular activities from a schools' perspective, followed by time and interest from pupils.

The three sub-groups most frequently identified by schools that would benefit most from increased participation in physical activity were: girls aged 11-16 years, girls aged 16+ years and 'non-sporty' pupils (defined as those who disliked participating in competitive sports). In terms of walking as a means of increasing physical activity, 58.3% of schools agreed that walking would be an effective means of promoting physical activity within the school day. The three main issues identified by schools that would be problematic when implementing a walking club were considered as safety, supervision and suitable ratios of staff to pupils, time and lack of suitable environment for walking.

## Conclusions from the WISH study

The WISH study has demonstrated that the delivery of a peer-led brisk walking programme within the school setting is feasible and acceptable to adolescent girls and school staff. In addition it is a low cost intervention for schools as there is limited teacher input and no additional facilities required. Walking represents an acceptable form of physical activity within the school setting, and overcomes some of the frequently cited barriers to physical activity from an adolescent female perspective. Future interventions within schools, involving opportunities to participate in physical activity outside of timetabled PE, should be targeted at the identified sub-groups who would benefit most from increased participation, for example, non-sporty pupils and adolescent females. Incorporating strategies such as social support from parents and friends, and peer mentoring may be effective in promoting physical activity during school recess. Positive experiences identified in this study should be reinforced when

recruiting adolescent females onto future walking interventions, and the barriers identified by schools in relation to safety and staffing concerns should be addressed.

## Conclusion

In this policy briefing we have established the health case for promoting physical activity, healthy eating and other positive health-related behaviours in adolescents. Schools represent a unique environment in which to promote positive health-related behaviours in adolescence with the additional advantage of overcoming many of the health inequalities found in other settings. Interventions, such as the WISH study, provide novel low-cost opportunities to promote positive health-related behaviours in this population and extend these behaviours into adulthood.

## Recommended priorities for action

1.	Support the implementation and robust evaluation of interventions designed to increase and sustain the participation of girls in physical activity
2.	Promote walking among adolescent girls in a school setting
3.	Promote peer-led approaches to physical activity in adolescents given the importance of peers to this age group

## References

1. Warburton DER, Nicol CW, Bredin SSD (2006). Health benefits of physical activity: the evidence. *CMAJ : Canadian Medical Association Journal*, 174(6), 801–809.
2. Department of Health (2011) Start Active, Stay Active: a report on physical activity from the four home countries' Chief Medical Officers.
3. Griffiths LJ, Cortina-Borja M, Sera F, Poulou T, Geraci M, Rich C, Cole TJ, Law C, Joshi H, Ness AR, Jebb SA, Dezateux C. (2013) How active are our children? Findings from the Millennium Cohort Study. *BMJ Open*. 21;3(8):e002893. doi: 10.1136/bmjopen-2013-002893.
4. Department of Health (2017) Health Survey (NI): First Results 2016/17
5. Singh AS, Mulder C, Twisk JW, van Mechelen W, Chinapaw MJ. (2008) Tracking of childhood overweight into adulthood: a systematic review of the literature. *Obes Rev*. 9(5):474-88. doi: 10.1111/j.1467-789X.2008.00475.x.
6. Kelder SH, Perry CL, Klepp KI, Lytle LL. (1994) Longitudinal tracking of adolescent smoking, physical activity, and food choice behaviors. *Am J Public Health*. 84(7):1121-6.
7. Department of Health (2017) Young Persons' Behaviour and Attitude Survey 2016 Health Modules
8. Department of Culture, Arts and Leisure (2014) Findings from the Young Persons' Behaviour and Attitude Survey 2013. DCAL Findings.
9. Treuth, MS, Catellier DJ, Schmitz KH, Pate RR, Elder JP, McMurray, RG, Webber, L. (2007). Weekend and Weekday Patterns of Physical Activity in Overweight and Normal-weight Adolescent Girls. *Obesity* 15(7), 1782–1788.
10. Bruening M, Eisenberg M, MacLehose R, Nanney MS, Story M, Neumark-Sztainer D. (2012) Relationship between adolescents' and their friends' eating behaviors: breakfast, fruit, vegetable, whole-grain, and dairy intake. *J Acad Nutr Diet*. 112(10):1608-13. doi: 10.1016/j.jand.2012.07.008.
11. McKinley MC, Lowis C, Robson PJ, Wallace JM, Morrissey M, Moran A, Livingstone MB. It's good to talk: children's views on food and nutrition. *Eur J Clin Nutr*. 59(4):542-51.
12. Carlin A, Murphy MH, Gallagher AM. (2015) Current influences and approaches to promote future physical activity in 11–13 year olds: a focus group study. *BMC Public Health* 15:1270
13. Dobbins M, Husson H, De Corby K, La Rocca RL (2013) School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6 – 18. *Cochrane Database of Systematic Reviews* 21(2):CD007651

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14. De Bourdeaudhuij I, Van Cauwenberghe E, Spittaels H, Oppert JM, Rostami C, Brug J, Van Lenthe F, Lobstein T, Maes L. School-based interventions promoting both physical activity and healthy eating in Europe: a systematic review within the HOPE project. *Obes Rev.* 12(3):205-16. doi: 10.1111/j.1467-789X.2009.00711.x.
15. Carlin A, Murphy MH, Nevill A, Gallagher AM. (2018) Effects of a peer-led Walking In Schools intervention (the WISH study) on physical activity levels of adolescent girls: a cluster randomised pilot study. *Trials.* 19(1):31. doi: 10.1186/s13063-017-2415-4.
16. Cale L. (2000) Physical activity promotion in secondary schools. *European Physical Education Review.* 6(1), 71-90.
17. Sport Northern Ireland (2010) A Baseline Survey of Timetabled PE in Post-Primary Schools in Northern Ireland