EVIDENCE REVIEW

School-based programs for promoting physical activity and fitness in children and adolescents

By Anne Wareing

Rates of obesity are rising in the general population. People with haemophilia are at high risk for being overweight or obese, and may benefit from physical activity-based interventions. The school setting is an ideal environment to implement physical activity-based interventions as it greatly influences the first two decades of life. However, there is a lack of knowledge about the benefits of exercise for managing haemophilia, as well as possible restriction of physical activity by parents or carers due to a fear of increasing the number of bleeding episodes. Furthermore, schools and teachers may be uncertain of how to integrate physical activity for children with bleeding disorders. This article summarises the Cochrane Metabolic and Endocrine Disorders Group systematic review on 'school-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6 to 18 and considers published literature about the role of physical activity within haemophilia.'

Keywords: *haemophilia, obesity, exercise*

Physical inactivity is a key risk factor in the development of most chronic diseases. In 2004, the World Health Organization (WHO) estimated that 2.6 million deaths were caused by individuals being overweight or obese [1]. Prevalence data on obesity within haemophilia varies from country to country; however, overall rates indicate that people with haemophilia are at high risk for being overweight or obese [2].

ANNE WAREING
Clinical Nurse Specialist, Department of Haemostasis, St George's University Hospital NHS Foundation Trust, Blackshaw Road, London SW17 0QT, UK.
Email: anne.wareing@nhs.net

There is some evidence describing the impact of obesity within haemophilia: increased BMI may increase joint disease and reduce range of motion (ROM), particularly active ROM in the lower extremities [3]. There is also evidence to suggest that rates of self-infusion of clotting factor concentrate is reduced in obese teens and adult men [4]. However, a problem when considering obesity within haemophilia is the lack of population-specific research – for example, there is no study to consider the association between diabetes, obesity and haemophilia as noted by Wong et al (2011) [2].

Exercise helps to lower the risk of cardiovascular disease in younger age groups. International studies have consistently shown, however, that fewer than 50% of boys in the normal population are active enough to gain benefit from exercise. The school setting is an ideal environment to implement physical activity-based interventions as it greatly influences the first two decades of life and ensures a large number of children are involved in the interventions. Within haemophilia, it is recognised that there is a lack of knowledge about the benefits of exercise and suggested that physical activity may be restricted by parents or carers due to a fear of increasing the number of bleeding episodes [5]. Conversely, schools and teachers may be uncertain as to how to integrate children with bleeding disorders into physical activity.

School-based physical interventions aim to increase the overall percentage of children and adolescents engaged in daily physical activity and, more specifically, weekly levels of moderate and vigorous activity. Data has shown that for each weekday that normal weight adolescents participated in physical education (PE), the odds of becoming overweight in adulthood decreased by 5%. Other methods of incorporating interventions throughout the school day include discussing the benefits of healthy eating within science classes. These interventions may

therefore make a significant contribution to weight management within haemophilia.

Objectives

This Cochrane review sought to evaluate the effects of school-based interventions on promoting physical activity and fitness and improving measures of physical health status in children and adolescents [6]. The review also aimed to determine whether certain combinations and/or components of school-based interventions are more effective than others in promoting physical activity and fitness in this population.

Intervention/Methods

Searches were conducted for studies published between 2007 and 2011 that included school-attending children and adolescents between the ages of 6 and 18 years. 44 studies were reviewed, the majority of which were conducted in the US, but also included studies from Australia, China and Europe. The range of interventions included changes to school curriculum, changes in school routines to increase time spent being physically active, provision of equipment, and increased training and educational materials for teachers. The interventions varied in duration from a minimum of 12 weeks to six years, and were implemented by classroom teachers, physical education teachers, research staff, health professionals, peers and parents. The review compared these interventions to currently existing, standard PE programs in schools.

Results

There was some evidence to suggest that school-based physical activity interventions led to an improvement in the proportion of children who engaged in moderate to vigorous physical activity during school hours together with an increase in the amount of time they spent doing it (an increase of between 5 to 45 minutes). It is important to note however that results were less positive for older age groups. Nevertheless outcomes improved for all participants in terms of reducing the amount of time spent watching television (reduced by 5 to 60 minutes). Studies also detected an improvement in physical health through an improvement in oxygen capacity. However, it should be noted that there were limitations on the quality of the evidence within studies, including lack of consistency in outcome measurement and reliance on self-reporting to assess behaviour.

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Conclusions

The authors conclude that there is evidence confirming the benefit – albeit small – of implementing school-based physical activity interventions. Importantly, follow-up data is needed to assess their long-term impact.

They make several recommendations for future practice, including the fostering of positive attitudes towards exercise in children and young people, raising activity levels throughout the school day and increasing parental involvement in exercise. These interventions may benefit children and young adults with haemophilia.

As life expectancy in haemophilia increases, understanding the impact of obesity is essential in informing interventions and health promotion activities such as physical exercise. Moreover, as medical treatments for haemophilia improve, it is important to maximise joint function through less costly interventions.

Disclosures

The author has advised no interests that might be perceived as posing a conflict or bias.

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