

EDITORIAL

Asthma, obesity, sedentary lifestyle and physical activity: an important issue still unresolved?

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Almost 10 years ago, the first longitudinal studies carried out in adults¹ and in children² showed a relation between obesity, especially in women, and asthma. After that, several epidemiological studies confirmed these findings, where obesity precedes and predicts the onset of asthma (time effect); that increased obesity leads to more severe asthma (dose-response effect); that weight reduction (by diet or gastric bypass) improves asthmatic symptoms; and that obesity co-occurs with intermediate asthma phenotypes (obese non-atopic young girls with early menarche)^{3,4}. However, the exact mechanism is unknown and various potential mechanisms have been proposed e.g. immunologic and inflammatory, hormonal, genetic, nutritional, mechanical and other mechanisms related to physical activity.

In relation with physical activity, some reports provide evidence on the importance of physical activity for children with asthma. Several studies have shown significant improvements in aerobic fitness and reduced asthma morbidity e.g. hospital admissions, reduced absenteeism from school, fewer consultations and less medication use and improved ability to handle their asthma⁵⁻⁷. Furthermore, schoolchildren with high physical fitness seem to be associated with a re-

duced risk for the development of asthma⁸. Participating in physical activity, particularly at school, will be an important contributing factor for psychological health of these children with asthma. On the other hand, some studies have failed to demonstrate the relation of physical activity and the time spent watching television, on asthma symptoms^{2,9}. However, it is important to remember that objectively quantifying physical activity over long periods of time is a challenging task, especially in children¹⁰.

A recent systematic review of 15 studies that addressed weight loss and asthma, where in only five studies the primary outcome was asthma (only one includes children) found that, regardless of the type of intervention (surgical vs. medical), all the studies note an improvement in at least one asthma outcome after weight loss¹¹.

However, in spite of the benefits of physical activity training programmes for children and young people with asthma, no change in actual baseline lung function has been shown^{12,13}. Nevertheless, a substantial proportion of sportsmen and women who compete at elite international level have a diagnosis of asthma¹⁴, or experience exercise-induced asthma¹⁵.

Another important issue in asthmatic children is the reduced levels of participation in physical activities. Children and young asthmatics are less active than their healthy peers, especially teenage girls¹⁶. The factors affecting the participation in physical activities are diverse: many children and young asthmatics believe that limitations on their activity are an inevitable part of having asthma¹⁷. Curiously, in a study in UK, almost 80 % of teenagers said that the resultant effect of not being able to participate in sport was the worst thing about having asthma and was potentially stigmatising¹⁸. In addition, some parents may consciously or unconsciously restrict their asthmatic child's activities from preschool age¹⁹. And

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finally, many teachers and school staff have limited knowledge about asthma and the medication their pupils need to take before physical activity at school, and also how to manage an asthma attack, leading to unnecessarily restricting physical activity in asthmatic children at school.

A number of strategies to increase participation in physical activity have been proposed (e.g. accurate detection, diagnosis and symptoms management, to acknowledge and address social and family contexts, to be goal and value based and to address the problem of symptom interpretation)²⁰, but these go beyond the scope of this editorial.

In this journal, Vlaski et al. report a study on 3026 adolescents from the Republic of Macedonia who participated in the ISAAC Phase Three study looking for the influence of physical activity and television-watching time on asthma. The authors found that physical activity may trigger asthma symptoms when physical fitness is poor and asthma is not controlled. They reported that vigorous physical activity both ≥ 3 times and 1-2 times per week was associated with an increased risk of current wheeze (aOR: 1.66 and 1.70, respectively). Moreover, a sedentary lifestyle, like watching television ≥ 3 hours a day, increased the risk of current wheeze and exercise-induced wheeze (aOR: 1.34 and 1.32, respectively). However, a limitation of this study is that when the authors performed a multiple varied analysis, both variables – vigorous physical activity and watching television – were not adjusted for each other, and also other potential confounder factors like paternal asthma, sibling, and active tobacco consumption, were not included.

Therefore, more studies on this important issue need to be carried out in order to clarify the specific role of physical activity and sedentary lifestyle on asthma morbidity in children.

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