

Leisure time activity and new onset of wheezing during adolescence

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The objective of the presented study was to analyse the association of different types of leisure time activity with the development of wheezing in young adolescents. The authors intended to test the supposition that adolescents with less physical activity in their leisure time have a higher prevalence of wheezing compared with their active counterparts

Asthma is a chronic inflammatory disease with increasing prevalence both in adult and paediatric patients. There are several explanations for this phenomenon such as genetic factors, environmental influences or a western lifestyle, with reduced physical activity. Different studies have shown a negative association between the prevalence of asthma and physical activity.

The present analysis is a continuation of the Study on Occupational Allergy Risks (SOLAR, 2002) and of the International Study of Asthma and Allergies in Childhood II (ISAAC II, 1995–1996), based on 2,910 adolescents who had never had an episode of wheezing in childhood when assessed at the first survey. At the time of follow-up, 330 (11.3%) of them reported wheezing within the previous 12 months. Of these, 54 (16.3%) had doctor-diagnosed asthma. All subjects had to complete a questionnaire with 121 questions focusing on:

genetic factors; respiratory symptoms and diseases; housing; pets; active and passive smoking; occupational choice and working environment; leisure time activity; physical development; and stress factors. Using a questionnaire, without physical examination was a limitation of the study, however, the questionnaire was previously validated against clinical examinations.

Information on leisure time activity was structured as follows: 1) four categories of sport frequency between not more than once per month and 3 times per week; 2) computer work and TV watching >1 h/day; and 3) visiting a discotheque (yes or no).

A significantly negative association was found between wheezing and increasing frequency of sport ($p=0.001$) and computer work ($p=0.01$). The analysis of the association new onset of wheeze – different types of exercise/the number of hours spent doing sport, showed similar (not statistically significant) negative tendencies. In contrast, visiting a discotheque was associated significantly positive ($p=0.02$) with current wheezing.)

A highly significant positive association was found between active smoking with wheezing, as well as with TV watching and visiting discotheques ($p<0.001$), while the association of active smoking with frequent sport and

computer work was significantly negative ($p < 0.001$). Passive smoking ($p < 0.001$), female sex ($p < 0.001$) and low socioeconomical status (SES) ($p = 0.08$) were also significantly positive associated with wheezing, while no statistical significance was found for TV watching or BMI.

When stratifying the analysis for smokers and nonsmokers, no significant association was found between leisure time activity and wheezing. The leisure time activities were not associated with a significant risk of new onset of wheeze. Passive and active smoking, however, remained highly significant risk factors. Besides smoking, only female sex implied a significant risk for new onset of wheezing. A parental history of asthma did not significantly increase the risk of new onset of wheezing.

The presented study is the first that simultaneously investigates the association of leisure time activity and active or passive smoking with wheezing in adolescents. The results showed a significant positive association between wheezing

and visiting discotheques, and significant negative associations between wheezing and sport or computer work. However, active smoking is a substantial confounder of the association of leisure time activity and wheezing, being significantly associated with wheezing, as well as with all investigated leisure time activities. Another important observation of the study was that adolescents working frequently with a computer smoked less, while those watching TV smoked more, had a lower SES and practiced less sport.

In conclusion, the current study implicates that sport, computer work or TV watching are not independent risk factors for new onset of wheezing in adolescents. All risk factors are strongly associated with active smoking, which itself is a powerful predictor for the onset of wheezing. The present data do not allow determining whether smoking operated as a confounder or as an intermediate factor (physical activities prevent active smoking). □

Comment on the paper:

Vogelberg C, Hirsch T, Radon K, et al – Leisure time activity and new onset of wheezing during adolescence. *European Respiratory Journal*, 2007; 30:672-676