

Prevention in school: one day workshop about cardiovascular health

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Introduction

The average German student spends 9 hours a day sitting in school, doing homework, in front of the computer or TV. When chips and chocolate bars for lunch are added we face a horror scenario that explains increasing numbers of overweight and obese children. To make children aware of positive effects of a healthy lifestyle, we set up a prevention program that can be included in every school setting.

Methods

The prevention program „Sternstunden der Gesundheit“ was conducted in the school district of Berchtesgadener Land, Germany. It consisted of a noninvasive ultrasound measurement of carotid intima media thickness (cIMT) and parameters of arterial stiffness (pulse wave velocity, augmentation index, stiffness index β). Health-related fitness (HRF) was assessed using the FITNESSGRAM® test battery. Students were tested for strength, flexibility and aerobic capacity. Anthropometric measures consisted of body weight and height, waist circumference, body mass index, waist-to-height and waist-to-hip ratio. Children and their parents filled in questionnaires about nutritional behavior and family history. The additional program was adapted according to age and school type. Children learned about the circulatory system, prevention of cardiovascular disease, healthy nutrition, performed ultrasound measures and chemical food analysis. The study was funded by „Sternstunden e.V.“ and „Landratsamt Berchtesgadener Land“.

Results

1017 children from 14 schools and 47 different classes respectively, aged 7-17 years (483 boys/ 534 girls) participated in the program „Sternstunden der Gesundheit“. HRF data was calculated for the entire study population, vascular data was analyzed for 736 children (330 boys/ 406 girls). The program was very well accepted by pupils, teachers and parents and gave insight into cardiovascular health data of an entire district.

Conclusion

The program „Sternstunden der Gesundheit“ can be applied in any school setting due to numerous variations in content and can be implemented within a regular school day. Ultrasound measurements are a cost-intensive factor and need trained examiners but provide important data for diagnosis of atherosclerosis. Further analysis will include assessment of normative values for cIMT and vascular stiffness data, gender comparisons of HRF for age, body composition and different school types and the association between vascular data and HRF.