

Abstract

A Question of Balance

Physical activity, sitting time and the development of overweight and obesity in children and adolescents

apl. Prof. Dr. Gerhard Huber, Institute for Sport and Sport Science, University of Heidelberg

It is a circumstance that has persisted for years: many children and adolescents are still undertaking far too little physical activity overall and, with increasing age, the recommendations of the World Health Organisation (WHO) of undertaking 300 minutes of moderate to strenuous physical activity per week are being less and less often achieved. Even prior to the Covid epidemic, this trend led to worryingly long sedentary periods among young people in Germany. The average sitting time among schoolchildren was already 10.5 hours per working day. The pandemic has had the effect of significantly exacerbating this situation. Not only did the enforced distancing conditions put an end to all sports activities in schools and clubs, but banishing people to the confines of their own homes also put paid to their daily exercise routines. According to a French survey, the time spent sitting has increased by another 75 minutes a day during the pandemic. In Germany, around 12 hours of leaden sitting are now being recorded among schoolchildren (with increasing age) and students.

Sitting and sleeping show almost the same energy expenditure

This is an alarming development because when we are sitting, we consume only slightly more energy than when we are asleep. And thus, prolonged sedentary periods contribute to the trend towards overweight. For a long time, "sitting" was primarily an orthopaedic issue. It is now known that a far greater danger emanates from the accompanying metabolic effects: "Use it or lose it." This applies to almost all bodily functions, but especially to the musculature. When we are sitting, it is especially our postural muscles that get little to no exercise at all. We now know that muscle deterioration is a significant factor in functional impairment and ageing. Sitting also leads to a number of metabolic ailments, such as a deterioration in the amount of glucose that is transported to the muscle cells.

Average energy intakes are on the decline and no higher than the recommendations issued by scientific societies – exercise is key

Bone metabolism reacts especially sensitively to overlong sedentary periods since it is dependent on the constant trophic stimulus of our walking upright. This can lead to movement deficiency diseases, including cardiovascular diseases, type 2 diabetes, and even cancer. In addition, prolonged sitting times promote the development of overweight. Those who are calling for an adjustment to dietary recommendations in face of a lower energy metabolism brought on by a lack of physical activity have misunderstood the real issue. The average energy intake from food consumption is anyway in decline and does not exceed the respective recommendations of scientific organisations. It is important to prevent a habitual sedentary lifestyle even in childhood and to keep children happily involved in active and mobile daily lives, encouraging them to enjoy physical activity. In any case, a sedentary lifestyle in and of itself poses a serious risk to the health of entire generations that hitherto has neither been properly recorded nor sufficiently taken into account.

More physical activity in everyday life is a must – a sedentary lifestyle must not be allowed to become even more entrenched

A sedentary lifestyle is a decisive lever in the fight against the juvenile obesity epidemic. Solutions can only be found in an interdisciplinary manner and include the psychosocial factor. From the perspective of exercise science, the main recommendations for implementation can be summarised as follows:

- 1) At least 60 minutes of physical activity should be planned into every day. This includes making the school route a more active affair, combining play with physical activity, integrating stair climbing, etc.
- 2) Sports activities suitable for improving coordination, endurance, and muscular stability should be staged at least twice a week.
- 3) Avoid long sitting times; if that is not possible, include planned breaks from sitting as part of a fixed routine, and reduce sitting times overall.