

Review Article

Dramatic Increase of Body Weight during Covid-19 Breakdown: Data from the Austrian Prevention Project Eddy Kids 2018/19 and Eddy Kids 2019/20

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Abstract

Introduction: Overweight and obesity among adults and children has increased dramatically worldwide in the last few decades. Overweight children usually remain overweight in adulthood and develop lots of comorbidities. It is therefore important to take preventive measures as early as possible to counteract this trend.

Objective: To find out what effect the temporary school closure in Austria due to COVID-19 had on the school children in terms of body weight.

Methods: Anthropometric parameters (bodyweight, body fat percentage and height) were measured twice in all students (before and after a 6-month intervention period). The intervention group received a one-hour nutrition lesson and two one-hour sports lessons per week. The control group was only tested and received no intervention.

Subjects: The study group consisted of a control and an intervention group with a total of 115 school children.

Results: The intervention and the control group gained about +4.5 kg in 2019/20, whereas the average increase in body weight was +2.85 kg (intervention group) and +2.61 kg (control group) the year before (2018/19).

Conclusion: The lockdown in the context of the COVID-19 pandemic has a big impact on body weight. Special online trainings should be implemented for school children, which should also involve the families.

Introduction

Lack of exercise and an unhealthy diet in children can lead to the development of overweight and obesity. In the long term, overweight children have an increased risk of various diseases such as high blood pressure, diabetes mellitus type 2, joint and cardiovascular diseases [1].

Research has also shown that minority groups such as Black, Latinx and Native Americans experience inequalities in access to healthy and affordable food due to ethnic and racial differences. This often results in obesity and associated chronic diseases and in turn leads to a poor outcome from COVID-19 [2].

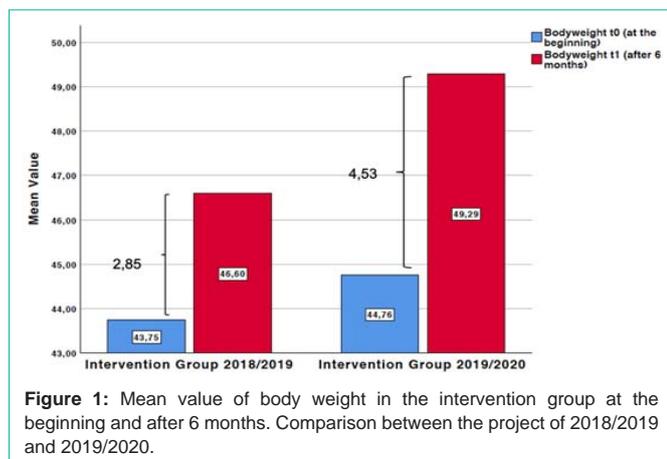
The EDDY project is an evaluated prevention project that has been going on for several years to affect the lifestyle and nutrition habits of adolescents by intervention with nutritional training and sports programs to prevent obesity. The results of the prevention project show that there has been an improvement in nutritional knowledge. The physical performance has also improved a little. Although there was a slight increase in body fat in the intervention group, no significant changes could have been identified [3].

Methods and Subjects

The EDDY prevention project has been implemented in Austria to stop the increase of the prevalence of obesity according to the

guidelines of WHO. The aim is to find out whether nutrition and sports interventions have a significant effect on anthropometric parameters such as Body-Mass-Index (BMI), body weight, and body composition. The project took place in 2018/19 as well as in 2019/20. Unfortunately, EDDY Kids 2019/20 was interrupted because of the COVID-19 pandemic and we investigated what influence the pandemic respectively the temporary closure of the schools in Austria represents. This was not a clinical trial. The results are summarized from an ongoing obesity prevention program, which was approved by the ethical committee of the Sigmund Freud University Nr. PAFGRW9O@EFQV885378.

Overall, 115 children took part in the study and got divided into an intervention group (4th grade) and a control group (3rd grade). Anthropometric parameters were measured in all students before (December 2019) and after (June 2020) a 6-month intervention period. Therefore the BIA scale "TANITA MC-780MA" was used to measure body weight, body fat percentage and lean mass. The intervention group received an intervention, consisting of a one-hour nutrition lesson and two one-hour sports lessons per week. During a nutrition lesson a nutrition topic (e.g. healthy snacks) got addressed through a theoretical and a practical part. As part of the practical part, the children prepared and tasted small dishes themselves under supervision. The main focus of the sports intervention classes was stamina and strength training, but also included stretching and



coordination. The coaches tried to make a lesson as playful, but still challenging as possible.

The interventions were integrated into normal school lessons, but led by an external, qualified team of the Austrian Academic Institute for nutritional medicine and the Sports University Schmelz. In 2018/19 the complete intervention could take place for about 6 months. In 2019/20 the intervention, unfortunately, had to be stopped after 2 months due to the school closure during the lockdown in Austria. Even though materials for home-schooling were provided during that time, there was little to no response from the pupils.

Results

The bar graph presents the mean value of body weight in the intervention group 2018/19 and 2019/20, before and after (after 6 months). As shown in the diagram the mean value of the body weight

in the intervention group 2018/19 increased by +2.85 kg (from 43.75 kg to 46.6 kg) and in 2019/20 by +4.53 kg (from 44.76 kg to 49.29 kg). The mean body weight in the intervention group 2019/20 increased by +1.7 kg on average, compared to the intervention group 2018/19. The mean value of the body weight in the control group 2018/19 increased by +2.61 kg and in 2019/20 by +4.54 kg. Therefore, the mean body weight in the control group 2019/20 has increased by +1.9 kg on average, compared to the previous year.

Conclusion

Thus, in the cause during COVID-19 lockdown the measurement results obtained a clear influence on body weight. Both the intervention group and the control group in 2019/20 gained about 4.5 kg, whereas the previous year the average increase in body weight was 2.85 kg (intervention group) and 2.61 kg (control group).

These data show clearly that during COVID-19 lockdown special online trainings for all children should be implemented, which should also include the families.

From the available results, it is concluded that the time without school leads to an above-average increase in weight.

References

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