Intervention of childhood and adolescents obesity in Shantou city

In this study, the effects of a multicomponent, school-based intervention for childhood obesity in Shantou city are analysed. Two schools in the city were randomised for a control and intervention group. 26 students with overweight or obesity in the intervention group completed the one-year programme and the differences in Body Mass Index (BMI), metabolic profile, anthropologic measures, and questionnaire scores were compared for before and after. These results were then compared to 15 students with overweight or obesity monitored in the control group. The intervention programme included a “12-month education and consultation of diet, exercise and psychology” for the students. Notably, there were activities held during summer and winter break, which meant that the intervention was both inside and outside the school.

At the end of the 12-month intervention, data collection showed a significant increase in the BMI of the two schools rather than a decrease. BMI, however, may not be enough to predict obesity, as muscle gained is denser than fat. Additional measures of waist circumference (WC) hip circumference (HC), waist-to-hip ratio (WHR) and waist-to-height ratio (WHtR) are recommended. BMI-Z is suggested as a better predictor of the ratio of muscle mass to fat, and the intervention group saw a statistically significant decline between baseline and post-intervention values in BMI-Z. This suggests that lifestyle interventions may improve the overall health and nutritional habits of students with overweight and obesity. Furthermore, the increase in HC values for intervention and control students and no decline of WC at the 12-month follow-up “may be due to the growing of bone and muscle mass when students being in the stage of puberty, which could be supported by the improvement of post-intervention values for WHR and WHtR of the intervention school”. In future studies the use of MRI imaging to evaluate the amount and distribution of visceral fat, which is associated with the health risks in obesity, is recommended. Children also self-reported significant promotion of diet and exercise habits, which can lead to not only health but social and psychological benefits. Also, cholesterol and low-density-lipoprotein cholesterol (LDL-C) levels decreased non significantly after the intervention for participating students, while the control school had a significant increase of the 12-month follow-up values for triglycerides and LDL-C levels. As increases in these blood markers are associated with health issues, “the control school students could have greater risk of developing chronic diseases, which was likely to be reduced after the intervention”.