

Effect of Lifestyle Modification for Two Years on Obesity and Metabolic Syndrome Components in Elementary Students: A Community-Based Trial

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Abstract : Background: Lifestyle modifications, especially improving nutritional patterns and increasing physical activity, are the most important factors in preventing obesity and metabolic syndrome in children and adolescents. For this purpose, the following interventional study was designed to investigate the effects of educational programs for students, as well as changes in diet and physical activity, on obesity and components of the metabolic syndrome. Methods: This study is part of an interventional research project (elementary school) conducted on all students of Sama schools in Zanjan and Abhar in three levels of elementary, middle, and high school, including 1000 individuals in Zanjan (intervention group) and 1000 individuals (control group) in Abhar in 2011. Interventions were based on educating students, teachers, and parents, changes in food services, and physical activity. We primarily measured anthropometric indices, fasting blood sugar, lipid profiles, and blood pressure and completed standard nutrition and physical activity questionnaires. Also, blood insulin levels were randomly measured in a number of students. Data analysis was done by SPSS software version 16.0. Results: Overall, 589 individuals (252 male, 337 female) entered the case group, and 803 individuals (344 male, 459 female) entered the control group. After two years of intervention, mean waist circumference (63.8 ± 10.9) and diastolic BP (63.8 ± 10.4) were significantly lower; however, mean systolic BP (101.0 ± 12.5), food score (25.0 ± 5.0) and drinking score (12.1 ± 2.3) were higher in the intervention group ($p < 0.001$). Comparing components of metabolic syndrome between the second year and at time of recruitment within the intervention group showed that although number of overweight/obese individuals, individuals with hypertriglyceridemia and high LDL increased, abdominal obesity, high BP, hyperglycemia, and insulin resistance decreased ($p < 0.001$). On the other hand, in the control group, number of individuals with high BP increased significantly. Conclusion: The prevalence of abdominal obesity and hypertension, which are two major components of metabolic syndrome, are much higher in our study than in other regions of country. However, interventions for modification of diet and increase in physical activity are effective in lowering their prevalence.

Keywords : metabolic syndrome, obesity, life style, nutrition, hypertension

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