The effect of a comprehensive intervention on anthropometric indices, dietary intake, and physical activity of adolescent boys with overweight

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Abstract (300 word limit)

Increased risk of non-communicable diseases during adulthood signifies the importance of effective intervention for adolescent obesity. Impact of a lifestyle modification program on anthropometric indices, dietary intake, and physical activity in overweight adolescent boys was evaluated in the present study. A field trial was conducted on 126 participants implementing a school-based intervention at two levels: institution-wide campaigns based on the Ottawa Charter framework and personalized diet and physical activity plans. After four months, the intervention group showed a significant reduction in BMI (1.20% decrease, $P < 0.05$) and body fat percentage (6.41% decrease, $P < 0.01$) compared to the control group. Dietary intake improvements consisted of a decrease in calories (2350 ± 861 vs. 2634 ± 917 kcal/day), carbohydrate (255.68 ± 41 vs. 286.97 ± 47 g/day), and fat intake (112.67 ± 78 vs. 217.72 ± 86 g/day) ($P < 0.05$ for all). The intervention group reported significant improvements in physical activity levels characterized by increased distance (3501 ± 287 vs. 614 ± 56 m), duration (203 ± 35 vs. 72 ± 10 min), and energy expenditure (359.24 ± 62.4 vs. 46.74 ± 7.5 kcal) (all $P < 0.01$). The study provides evidence that a multi-component intervention based on both school environmental and individual approach might improve weight-related outcomes, nutrition behaviors, and physical activity in adolescents. The Ottawa Charter framework could be a useful guide for obesity management programs for this population.

Recent Publications (minimum 5)

1. Hashemi Javaheri FS, Mousavi Z, Mohammadi S, Amjadi A, Mobarakeh KA, Hayedeh Mousavi Shalmani S, Torkaman M, Mirshafaei MA, Khoshdooz S, Saeedirad Z, Kalantari N. The effect of a comprehensive intervention on anthropometric indices, dietary intake, and physical activity of adolescent boys with overweight. BMC pediatrics. 2025 Jan 27;25(1):67.
2. Gholamalizadeh M, Doaei S, Mokhtari Z, Jalili V, Bourbour F, Omidi S, Ebrahimi K, Kalantari N, Abdi S, Azizi Tabesh G, Naimi Joubani M. Association of serum 25-OH-vitamin D level with FTO and IRX3 genes expression in obese and overweight boys with different FTO rs9930506 genotypes. Journal of Translational Medicine. 2021 Dec;19:1-6.
3. Bahar B, Kanagasingam S, Tambuwala MM, Aljabali AA, Dillon SA, Doaei S, Welbury R, Chukkapalli SS, Singhrao SK. Porphyromonas gingivalis (W83) infection induces Alzheimer's disease-like pathophysiology in obese and diabetic mice. Journal of Alzheimer's Disease. 2021 Jan 1;82(3):1259-75.
4. Doaei S, Kalantari N, Izadi P, Salonurmi T, Mosavi Jarrahi A, Rafieifar S, Azizi Tabesh G, Rahimzadeh G, Gholamalizadeh M, Goodarzi MO. Changes in FTO and IRX3 gene expression in obese and overweight male adolescents undergoing an intensive lifestyle intervention and the role of FTO genotype in this interaction. Journal of translational medicine. 2019 Dec;17:1-8.
5. The role of FTO genotype in the association between FTO gene expression and anthropometric measures in obese and overweight adolescent boys



Biography

Saeid Doaei, PhD, RD is a researcher and registered dietitian specializing in nutrition, obesity management, and lifestyle interventions. With a strong background in clinical and public health nutrition, his research focuses on the effects of dietary modifications, physical activity, and behavioral interventions on metabolic health. He has contributed to numerous studies on adolescent obesity, personalized nutrition, and non-communicable disease prevention. Dr. Doaei has published extensively in peer-reviewed journals and has presented his findings at national and international conferences. His work integrates scientific research with practical applications to develop effective health strategies. As an advocate for evidence-based nutrition, he actively collaborates with academic institutions and health organizations to promote sustainable lifestyle changes. His expertise extends to the application of genetic and environmental factors in nutrition-related health outcomes. Dr. Doaei remains committed to advancing knowledge in nutrition science and improving public health through innovative research and education. Email: Doaei@gums.ac.ir