Background: Some SNPs related to lipid and energy metabolism may be implicated not only in the development of obesity and associated comorbidities, but also in the weight loss response after a nutritional intervention. Objective: In this context, the present study analyzed four SNPs located within four genes known to be associated with obesity and other obesity-related complications, and their putative role in a weight-loss intervention in overweight/obese adolescents. Methods: The study population consisted of 199 overweight/obese adolescents (13-16 yr old) undergoing 10 weeks of a weight loss multidisciplinary intervention: the EVASYON programme (www.estudioevasyon.org). Adolescents were genotyped for 4 SNPs, and anthropometric measurements and biochemical markers were analyzed at the beginning and after the intervention. Results: Interestingly, APOA5(rs662799) was associated with the baseline anthropometric and biochemical outcomes, whereas FTO (rs9939609) seemed to be related with the change of these values after the 10-week intervention. The other two SNPs, located in the CETP (rs1800777) and the APOA1 (rs670) genes, showed important relationships with adiposity markers. Specifically, a combined model including both SNPs turned up to explain up to 24% of BMI-SDS change after 10 weeks of the multidisciplinary intervention, which may contribute to understand the weight loss response. Conclusion: Common variants in genes related to lipid and energy metabolism may influence not only biochemical outcomes but also weight loss response after a multidisciplinary intervention carried out in obese/overweight adolescents.

Keywords
APOA1. CETP. EVASYON. FTO. APOA5.