

Epigenetic biomarkers may predict if a specific diet and exercise regimen will work

May 30 2013

Would you be more likely to try a diet and exercise regimen if you knew in advance if it would actually help you lose weight? Thanks to a new report published in the June 2013 issue of *The FASEB Journal*, this could become a reality. In the report, scientists identify five epigenetic biomarkers in adolescents that were associated with a better weight loss at the beginning of a weight loss program. Not only could this ultimately help predict an individual's response to weight loss intervention, but it may offer therapeutic targets for enhancing a weight loss program's effects.

"Successful [obesity treatment](#) during adolescence could reduce morbidity at later stages of life and lead to a better quality of life," said Amelia Martí, Ph.D., Pharm. D., co-author of this study from the Department of Nutrition, Food Science, Physiology and Toxicology at the University of Navarra in Pamplona, Spain. "It is crucial to find new markers for obesity treatment. Here, we describe five putative epigenetic [biomarkers](#) that could help to predict the response to a weight loss intervention in obese adolescents."

To make this discovery, Martí and colleagues first performed a global methylation assay in 24 adolescents who had the best and worst response to the EVASYON weight loss program, and then expanded the sample to include 83 more adolescents. Researchers measured an epigenetic marker, [DNA methylation](#) levels, in obese adolescents from a blood sample at baseline and again at the end of the 10-week program. Participants were then divided into two groups (high and low responders)

according to the weight loss achieved. The researchers found that the baseline DNA methylation levels of five epigenetic markers were associated with better weight loss response. This EVASYON program is a lifestyle and nutritional educational weight loss program that includes a multidisciplinary team of nutritionists, physiotherapists, psychologists and pediatricians. EVASYON was conducted in five Spanish cities: Granada, Madrid, Pamplona, Santander and Zaragoza.

"If you've ever wondered why some people seem to do so well on a diet and exercise plan and other fail so miserably, then now we know that the way that genes express themselves (via epigenetics) plays an important role," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "This report moves us a step closer when we will be able to prescribe a weight loss program tailored to more than just the lifestyle and conditioning level of the patient, but also to his or her particular genetic and epigenetic profile."

More information: Adriana Molerés, Javier Campión, Fermín I. Milagro, Ascensión Marcos, Cristina Campoy, Jesús M. Garagorri, Sonia Gómez-Martínez, J. Alfredo Martínez, M. Cristina Azcona-Sanjulián, and Amelia Martí, on behalf of the EVASYON Study Group.

Differential DNA methylation patterns between high and low responders to a weight loss intervention in overweight or obese adolescents: the EVASYON study. *FASEB J* June 2013 27:2504-2512;

[doi:10.1096/fj.12-215566](https://doi.org/10.1096/fj.12-215566)

Provided by Federation of American Societies for Experimental Biology

Citation: Epigenetic biomarkers may predict if a specific diet and exercise regimen will work (2013, May 30) retrieved 25 April 2024 from

<https://medicalxpress.com/news/2013-05-epigenetic-biomarkers-specific-diet-regimen.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.