

# Study shines a light on relationship between genes, diet and obesity

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Credit: AI-generated image ([disclaimer](#))

A project involving 29 partners from across Europe has successfully identified a number of innovative products and dietary regimes that could help individuals susceptible to weight gain avoid becoming obese. The project represents an important step towards addressing this critical health issue, and realising the full commercial potential of the dietary

market.

While the rapid growth in [childhood obesity](#) across Europe has been well documented, our understanding of exactly why some kids are more susceptible than others remains open to debate. Scientists know that obesity is determined largely by [genetic factors](#), but the extent to which [lifestyle factors](#) can play a role is contentious.

Achieving a better understanding of the multiple causes of obesity is therefore important, as this will lead to more effective health strategies. The EU-funded DIOGENES ('Diet, Obesity and Genes') project contributed to this objective by gaining deeper insight into this disease from a dietary perspective.

The project's primary dietary focus was identifying [macronutrients](#) that can facilitate a healthy weight maintenance after weight loss, and specifically the role of carbohydrates and proteins in enhancing satiety (feeling full). To examine this critically, the project embarked on a long-term randomised study of families across eight countries. The aim was to identify gene-nutrient interactions linked with changes in [body weight](#) and [waist circumference](#).

During the project, overweight or obese parents followed an eight-week weight loss programme using a low-calorie formula diet. Another research line focused on gene-nutrient interaction associated with changes in body weight and metabolism, in order to guide a diet-based control of weight. One of the main goals was to highlight factors (genes, transcripts or proteins) that could help to predict the ability of an individual to lose weight under energy restriction (reduced [calorie intake](#)), or to maintain the reduced weight.

DIOGENES also sought to gain a better understanding of the link between obesity, genes and diet at the population level. Access to long-

term clinical and nutritional data gave the project a unique opportunity to identify the role of the key dietary factors high protein intake and low glycemic index foods and gene-nutrient interactions associated with changes in body weight and waist circumference. The project also assessed the lifestyle and psycho-social aspects of food intake in order to identify key psychological / behavioural predictors of weight gain, for use in diagnosing risk and for better matching diets to consumer needs. The project also developed low-calorie high protein but tasty foods for consumers thinking of weight-gain issues.

A centralised data hub was established to ensure that all information generated in relation to the project would be optimally integrated, stored, secured, and documented also for further analysis of the data set.

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