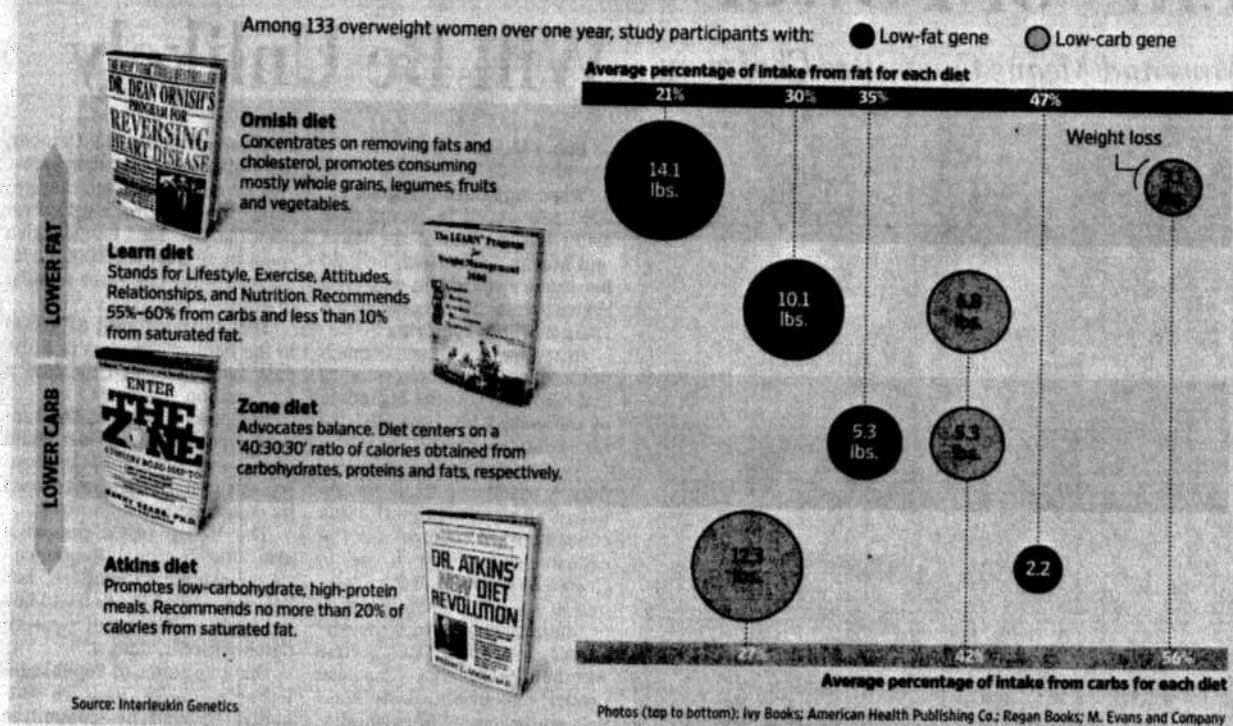


Dietary DNA | How a genetic variation affected weight loss in a study of four popular diets



Genes Point to Best Diets

Study Shows Some Women Benefit From Low-Fat Plan, Others From Low-Carb

BY RON WINSLOW WSJ 3/4/10

SAN FRANCISCO—In the long-running debate over diets—low-fat or low-carb—Stanford University researchers reported Wednesday that a genetic test can help people choose which one works best for them.

In a study involving 133 overweight women, those with a genetic predisposition to benefit from a low-carbohydrate diet lost 2 1/2 times as much weight as those on the same diet without the predisposition. Similarly, women with a genetic makeup that favored a low-fat diet lost substantially more weight than women who curbed fat calories without low-fat genes. The women were followed for a year.

“Knowing your genotype for low-carb or low-fat diets could help you increase your weight-loss success,” said Christopher Gardner, an associate professor of medicine at Stanford and a co-author of the study.

Data from a separate study indicate that 45% of white women have a low-carb genotype while 39% are predisposed to a low-fat diet, suggesting the test has the potential to yield a useful result for much of the population. The test is based on variations in three genes known to regulate how the body metabolizes fat and carbohydrates.

The findings need confirmation in a larger study, and additional research is also necessary to determine how it applies to men and different racial groups.

The results help explain a common phenomenon in the weight-loss wars: why two people decide to lose weight and go on the same diet and exercise plan, only to have one succeed while the other is frustrated.

The results suggest even strict adherence to a diet won't matter if people's diets are out of synch with their genetics, he added.



Women exercise in a class in Sacramento, Calif., during late February.

The test was developed by Interleukin Genetics Inc., a Waltham, Mass., developer of genetic tests that sponsored the study. The test uses a cheek swab to obtain cells for DNA analysis, and is on the market for \$149.

In the past decade, about a dozen studies pitting low-fat vs. low-carb diets have been published in major medical journals. For the most part, no winner has emerged, and none of the diets resulted, on average, in weight loss exceeding 10 pounds in a year. Experts began to believe the type of diet didn't matter.

“This makes the whole topic relevant again,” Dr. Gardner said.

Researchers said that determining a person's genetic predisposition could become a new tool in the battle against overweight and obesity.

“This is one step forward to

realizing personalized nutrition for weight loss,” said Mindy Dopler Nelson, a researcher at Stanford and lead author of the report. The researchers said they didn't have any financial interest in the Interleukin Genetics test.

“To match individuals with a diet type will help us to better target interventions and help them be successful,” added Sachiko St. Jeor, a professor in the division of endocrinology, nutrition and metabolism at University of Nevada School of Medicine, Reno. Dr. St. Jeor wasn't involved with the study.

The study, presented at the American Heart Association's annual epidemiology and prevention conference, has just been submitted to a medical journal and thus hasn't yet cleared rigorous peer review that precedes publication. But it was reviewed by a committee

that approves papers for presentation at the meeting.

Despite the relatively small number of participants, the findings achieved strong statistical significance, researchers said, meaning it isn't likely they were the result of chance. The findings are also based in part on an earlier paper, called the A to Z weight-loss study published in the Journal of the American Medical Association in 2007.

Just matching the right diet with your genes doesn't guarantee significant weight loss for everyone, Dr. Gardner cautioned. If low-carb people make a diet out of low-carb cupcakes, he said, they're unlikely to see the results they want on a scale.

The 133 women were among 301 participants in the A to Z study, which compared the effects of four popular weight-loss diets: the Atkins and Zone diets, which are low-carb, and the Learn and Ornish diets, which call for curbing fat calories.

In that study, the Atkins diet was slightly more effective than the other three, but on average, the total weight loss after one year was only about 10 pounds.

Yet, Dr. Nelson pointed out, within each diet group, a handful of women lost more than 30 pounds, while some others gained about 10 pounds. The new study examined whether genetics could explain part of the more than 40-pound swing.

Kenneth S. Kornman, president and chief scientific officer at Interleukin, said the company asked if the Stanford team could use its genetic test on the A to Z participants to see if their genetic makeup predicted their weight-loss experience.

Since Stanford researchers hadn't obtained DNA samples, Dr. Nelson led an effort to track down the original participants. She said over 130 agreed to submit cheek swab samples to determine genetic predisposition.