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Gene Screens Promise Nutrition Insights

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SUNDAY, May 7 (HealthDay News) -- Feeling listless? Losing the fight against obesity? Genetic data locked inside a few cheek cells could help explain why -- and maybe even help you turn things around.

That's the claim of companies marketing special "nutrition DNA tests" aimed at pinpointing genetic trouble spots that leave a person vulnerable to vitamin deficiencies or illness.

"The effectiveness of it is that it personalizes things for people," said Howard Coleman, founder and CEO of Seattle-based Genelex, which markets a \$395 test covering 19 nutrition-linked genes.

Coleman believes that when people understand their genetic predisposition to poor nutrition, it can empower them to do whatever it takes to stay healthy.

"If you know exactly what you need, then it's much easier to stick with it," he said. "In that sense, it 'fad-proofs' people who are otherwise buffeted around by whatever fad diet is out there. It tells you who you are."

Genelex is one of many companies, clinics and nutritionists offering this type of genetic analysis across the United States, with prices ranging from less than \$100 per screen to well over \$2,000, depending on the range of genetic testing conducted.

Most of these tests are aimed at preventive health -- spotting a DNA-based weakness early on, so that the individual can adjust his or her diet and/or lifestyle to help ward off illness.

For example, as part of its 19-gene "panel," the Genelex screen looks

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for variations in the *MTHFR* gene, which helps regulate the synthesis and availability of dietary folic acid.

"If you don't get enough folate, you're at increased risk for heart disease, colon cancer and other problems," Coleman said. Folic acid deficiency during pregnancy also raises risks for severe birth defects.

People with the normal two functioning copies of *MTHFR* should consume the USDA recommended daily allowance of 400 micrograms of folic acid, Coleman said. However, people with just one well-functioning copy will need twice that amount, and those with two "slow" copies would require 1,200 micrograms per day, he said.

"We know that in the European population, there's about two-thirds who have at least one slow copy of this gene," he noted.

The Genelex test also looks for genes that suggest vulnerabilities for other deficiencies such as vitamins C and D, and calcium. The test doesn't look for vulnerability to high cholesterol, but it can shed light on a weakness for "metabolic syndrome" (a cluster of risk factors for heart disease) and for a propensity for diabetes or inflammatory disorders, Coleman said.

Individuals who order the Genelex test receive a special kit to take a scraping of cells from their inner cheek that is then sent back to the company's lab for DNA analysis. They are also asked to fill out a detailed "lifestyle questionnaire."

But are tests focusing on a tiny fraction of the estimated 30,000 genes in the human genome promising more than they can deliver? Some think they might be.

"Every time a test says it can tell you everything about yourself, from nutritional deficiencies to risks for chronic disease, I'm suspicious," said Lisa Dorfman, an adjunct professor of nutrition at the University of Miami and a spokeswoman for the American Dietetic Association.

Dorfman said there's never just one cause for a nutritional or health condition. "One thing doesn't do it all -- diet doesn't cure you of everything, exercise doesn't -- these are all pieces of the puzzle," she said.

And, she worries that people who find they have a gene predisposing them to a specific condition might use that information unwisely.

"I'm a registered dietitian and a licensed psychotherapist, so I know the psychology of submitting yourself to this type of thing," Dorfman said. "I think that when people find out that they have [a predisposing gene] they can easily throw in the towel and say, 'Well, you see? I can't do anything about it, anyway.'"

She also believes doctors already have cheap and reliable non-genetic methods to spot nutrient deficiencies and disease risk factors right now.

"You can be really scientific about this without spending money on fancy testing," Dorfman said.

But Coleman said interest from the public in these types of tests is growing, and new screens are in development to spot genes for other conditions.

"We're talking to folks right now about a second- or third-generation DNA testing panel aimed at obesity," he said. "It's the beginning of more extensive testing that we'll hopefully be able to do in the future -- and it's coming from the mainstream of science."

More information

For much more on nutrition, visit the [American Dietetic Association](#).

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