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New research indicates protein plays role in diabetes

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As the prevalence of diabetes has doubled in the U.S. over the past decade, doctors are only now beginning to unravel the complex series of cellular events that cause some people to develop the chronic disease, while others remain healthy.

And while a cure is elusive as ever, new findings among area researchers are creating additional targets for drug therapies -- raising hope for people who have diabetes.

The disease, once considered a fairly straightforward problem, results when the body does not produce or effectively use insulin, a hormone produced in the pancreas that helps cells absorb sugars for energy. People who are overweight or obese have a greater risk of developing diabetes, because too much food and too little physical activity can burn out the body's ability to manage insulin.

"It's almost like it's a social problem as much as a disease," said Dr. John Buse, director of the Diabetes Care Unit at the University of North Carolina at Chapel Hill.

"Our society has evolved quickly, and the genetic background that enabled people to withstand episodes of starvation now has turned against us."

But not everybody who is overweight develops diabetes, and not every person with diabetes is overweight.

That's where the disease starts getting complex.

Much research is focusing on the metabolic processes that involve food and nutrients -- often with surprising results.

In a paper published Tuesday, Duke University researchers describe a new finding that indicates diabetes could be affected by protein _ not the usual suspects of sugary carbohydrates that are most associated as dietary taboos. The Duke team found that obese people metabolize protein differently than lean people, particularly when it's part of a high-fat diet.

When people eat too much protein and fat -- think double cheeseburger -- the metabolic byproducts can't be fully absorbed, and they flood the bloodstream. Among those byproducts is an enzyme that affects insulin sensitivity. As a result, a diet heavy on Big Macs creates a whole new way for the body to become insulin resistant.

"Correctly, protein is viewed as a good nutrient, and it certainly is in people who exercise and eat in moderation," said Christopher Newgard, director of the Sarah W. Stedman Nutrition and Metabolism Center at Duke and the study's lead author. "That's not what we're talking about here. We're talking about a dietary pattern that is typical in the U.S. and western society, where 65 percent of people are overweight. And they get that way by ingesting too many calories and not exercising."

Another curious discovery of metabolism has scientists at East Carolina University pursuing a molecule that re-creates the effects of gastric bypass surgery. Doctors at the university who helped pioneer the weight loss surgery first reported that many patients were cured of their diabetes within days of having a gastric bypass _ before they even lost weight.

Dr. Walter Pories, who founded ECU's bariatric surgery unit, said the

procedure reroutes food around a whole section of gut and, in the process, likely blocks a signal to the pancreas that triggers insulin production. Because many people with diabetes produce too much insulin, and the body becomes resistant to it, this interrupted signal appears to cure diabetes in more than half of patients.

"We're trying to figure out what are the signals coming from the gut," Pories said. "Once you identify the abnormal signal, then you could make a molecule to stop the signals. That molecule would then be the treatment for diabetes. Sweet, huh?"

But it's not that easy to pinpoint, and there remains the question of why diabetes persists in up to 40 percent of patients after weight-loss surgery.

"It is complex," Pories said. "But there has been a major turnaround. Here's a disease that has doubled in prevalence in the last 10 years, not just in the U.S. but around the world. But it is no longer hopeless."

Buse, at UNC, agreed. He said 20 years ago patients frequently suffered blindness, amputations and kidney failure. Now, he said, he rarely sees such complications.

"It's like having a loaded handgun at home: If it's not dealt with appropriately, it can kill," Buse said. "But the truth of the matter is, just like many, many people are able to own weapons and nothing happens ... the vast majority of people can live a full lifespan without disabling complications."

Keith Burgess of Raleigh said he is now working to be among those living a full life. When he was diagnosed with diabetes in 1997 at the age of 29, he went into denial. But shortly after moving to Raleigh a year ago, Burgess joined a diabetes clinic called wellLIFE. There, he learned how to grocery shop, exercise and properly monitor his bloodwork. He

dropped about 50 pounds, and now has diabetes well under control.

The company's founder, Dwan Kelsey, said the emphasis is to promote an entirely different lifestyle -- a business concept that is as new as some of the research.

"The people I see don't even know how to shop at the Food Lion," she says. "I tell them you can't buy this and this and this, and they're like, 'What? What is there left to eat?' And I tell them, you have a whole grocery store left. I've just named five items. You have to teach people how to function with this disease on a daily basis."

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ABOUT DIABETES

Diabetes is caused when the body does not produce or properly use the hormone insulin, which is needed to convert sugar, starches and other food into energy.

Heart attack and stroke are the No. 1 killers of people with diabetes. The disease also causes blindness, kidney failure, amputations, depression, nerve damage and periodontal disease.

Sources: National Institutes of Health

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