

GROWTH OPPORTUNITIES: MANAGING DIABETES VIA NUTRITION

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If you add up these three statements, what do you get?

- Many food companies are struggling to find areas of growth
- Diabetes is a huge national health problem, growing at an epidemic rate
- Proper nutrition can play a major role in successfully managing diabetes

The one-word answer:

Opportunity

Many of us would conclude that food companies could realize a major growth opportunity by turning their focus

toward managing diabetes. But they haven't pursued that opportunity.

In this article, we discuss the growth opportunity,

the major roadblock to success, some of the roles that nutrition can play in managing diabetes, and some tantalizing possibilities that are just over the horizon. We also consider several unorthodox

possibilities for pursuing success.

Finally, we make an assertion: *This opportunity should catch fire in the food industry*

The importance of diabetes management

Diabetes mellitus, often simply referred to as diabetes, is a group of metabolic diseases in which a person has high blood sugar, either because the body does not produce enough insulin, or because cells do not respond to the insulin that is produced. Sustained high blood sugar typically produces symptoms

such as frequent urination, increased thirst and increased hunger.

Improperly managed diabetes can lead to

severe complications, including blindness, kidney failure and amputation of the extremities. Short-term complications can include hypoglycemic seizures.

In short, diabetes can be catastrophic for the patient, and expensive for our health care system.

The growth opportunity

Diabetes is a ticking time bomb for our nation. According to the American Diabetes Association, there are 17 million people in the United States who have been diagnosed, and another six million people who have diabetes but have not yet been diagnosed. The American Diabetes Association further states that the total cost of diagnosed diabetes in the U.S. was \$174 billion in 2007, which is a heavy burden on our healthcare system. That burden motivates every health insurer in the country to pay attention to the lifestyle behavior modifications that can dramatically reduce the cost of care for people with diabetes. Proper diet and nutrition will be part of that behavior modification.

The American Diabetes Association also says that there are another 79 million people in the U.S. who are pre-diabetic. If all of them develop diabetes, the

THERE ARE ANOTHER 79 MILLION PEOPLE IN THE U.S. WHO ARE PRE-DIABETIC. IF ALL OF THEM DEVELOP DIABETES, THE NUMBER OF PEOPLE WITH DIABETES WILL QUADRUPLE.

number of people with diabetes will quadruple. Globally, the International Diabetes Federation now estimates that there will be a total of 366 billion people with diabetes worldwide by 2030. Many food executives have long avoided nutrition-related medical opportunities (for example, gluten allergies), viewing them as niche markets that simply weren't big enough. Diabetes is no longer a niche market – it is a substantial mainstream market and a significant growth opportunity for food companies.

The major roadblock: Consumer education

Most consumers don't understand the vocabulary of managing diabetes. Clinicians talk about "fat exchanges" and "carbohydrate exchanges," and while that terminology is technically correct, most consumers remain baffled as to what they should eat to help them manage (or prevent) diabetes. And when the talk turns to "glycemic index" and "metabolic syndrome," there is literally not enough room on a food label to explain these concepts to a consumer.

Finally, most consumers don't realize how much they can reduce their risk of diabetes, just with exercise and proper diet. This is a real opportunity for food marketers. Food companies employ sophisticated marketing

techniques and utilize persuasive advertising. Turning their focus to communicating the role that nutrition/diet can play in preventing or managing diabetes will open a huge opportunity for growth in the food industry.

Opportunities: Where nutrition can help with diabetes management

The goals of successful diabetes management include:

- Maintaining normal blood glucose levels and minimizing large fluctuations in glucose levels
- Reducing blood pressure
- Improving blood lipid profiles (cholesterol, triglycerides, etc.)

So how can nutrition help achieve those goals? Here are a few options:

Fiber and glucose management

There is considerable research that suggests that increased fiber may be helpful to a person with Type 2 diabetes (the most common form). Certain fibers delay the emptying of the gut and slow the absorption of glucose. This can help prevent the large spikes in blood glucose that often follow eating a meal, and can help with the regulation of blood glucose.

Omega 3s, sterols and blood lipids

There is a wealth of elegant clinical data showing that certain omega 3 fatty acids (primarily

EPA and DHA) can lower the levels of circulating triglycerides. Omega 3 fatty acids, commonly known as fish oils, can also come from vegetarian sources such as algae.

Similarly, there is considerable clinical evidence that shows that plant sterols will lower cholesterol.

These bio-active ingredients are now commonly available and easily purchased from a number of well-regarded companies.

Micro-nutrients and oxidative stress

Oxidative stress is reported to be one of the key drivers of insulin resistance. Oxidative stress may damage mitochondria, which could induce apoptosis (cell death) of the pancreatic beta cells. This could blunt the secretion of insulin and dramatically interfere with proper blood glucose regulation. According to the *Journal of Biochemical and Molecular Toxicology*, pancreatic cells are particularly vulnerable to reactive oxygen species.

This suggests that diets that are high in antioxidants could be particularly helpful to people with diabetes. Some antioxidants include traditional sources such as vitamins A, C and E, as well as more exotic sources such as EGCG (epigallocatechin gallate), a potent antioxidant found in green tea.



On the horizon

In addition to these well-established areas where nutrition can play a role in managing diabetes, there are some exciting possibilities that are coming.

Probiotics and the microbiota

There are preliminary data from Denmark that suggest that the bacteria in the gut of people who have diabetes are different from the bacteria in the gut of people who do not have diabetes. It's not yet clear which is cause and which is effect, but the potential

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is quite provocative: it could be possible to take probiotics that could address or even reverse diabetes. Every company that provides products that could be successful delivery vehicles for probiotics should be watching this very carefully.

Reversing diabetes with very low calorie diets

It has long been thought that diabetes was manageable but not reversible. That is, once you have it, you have it for life. A study recently published in *Diabetologia* challenges that thinking. The study authors found

that an extremely low-calorie diet (600 calories/day) could reverse diabetes in just eight weeks. The authors found evidence that this extremely low calorie diet removed excess fat deposits that clog the pancreas, allowing normal insulin secretion to be restored.

This was only one study, which is far from conclusive. And living on 600 calories/day would be extraordinarily difficult for many

people in the US, where 1,000 calorie lunches are not uncommon. Still, these findings are quite provocative.

What if...?

Let's consider a few unconventional possibilities.

Suppose we didn't try to market diabetes products as "for diabetes," but rather as "glucose healthy," much the way we now say, "heart healthy" rather than "will lower circulating triglycerides." In fact, products that contained certain fibers as well as, for example, sterols could have

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two insignia on their labels: "glucose healthy" and "heart healthy."

Suppose we didn't require consumers to understand carbohydrate exchanges and fat exchanges and didn't require them to calculate those exchanges in order to determine what they could eat. Suppose that we did that work for them and developed products that were certified by a recognized agency to be "glucose healthy."

Going further, suppose we suggested suites of these "glucose healthy" and "heart healthy" products that could go together well to create entire meals, much the way some restaurants recommend certain wines and desserts with specific entrees.

There are lessons to be learned from successful food products that embody a specific functionality. When consumers were concerned about inadequate calcium in their diet and Tropicana launched their orange juice fortified with calcium, it was a great success. The orange juice tasted great and it provided a painless way to

add additional calcium to their diets. "Making it easy" will be a non-negotiable

requirement for successful entry into the diabetes market.

Conclusion

Addressing the nutritional aspects of diabetes is a substantial opportunity for food companies:

- The market is large and it is growing rapidly

- The costs of not managing diabetes are very high
- Nutrition can clearly help manage – and potentially prevent – diabetes
- There are no major competitors who are aggressively pursuing this opportunity

The biggest single roadblock is consumer education/awareness,

and the food industry has the means and the talent to clear that hurdle. 

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