Type 2 Diabetes
Cause and Cure, Not Control
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When you are first diagnosed with type 2 diabetes, you are typically given medications to lower your blood sugar and taught which foods to eat and which foods to avoid.

The focus of treatment is to do whatever it takes; diet, exercise and medications, including insulin if necessary to make your blood sugars in the morning (fasting), and after your meals (post-prandial) to be as close to normal (non-diabetic) as possible.

In order to achieve optimal "control" of diabetes, including type 1 diabetes, we make the patient an "engineer," counting carbohydrates (carbs) and matching that with medications and insulin dosages, to achieve "normal" blood sugars.

"Controlled" diabetes is certainly better than "uncontrolled" but in the case of type 2 diabetes, which is 90-95% of all the diabetes, type 2 diabetes can almost always be "cured." Type 1 diabetes cannot be cured, because they no longer make any insulin.

The challenge, and what is not often addressed with standard medical care when it comes to diabetes treatment, are what factors, both medications and nutritional, influence or effect diabetes "control," are not always helpful when it comes to "curing" diabetes. Arguably, the focus of traditional diabetes care is on "controlling" diabetes.

To help better understand “control” versus “cure” we must discuss one of the theories as to what causes type 2 diabetes. In medicine and science, we are always learning how things work, and so we get evidence, which is always changing as we learn more. What we believe is that the cause of type 2 diabetes is something called “insulin resistance.” Insulin resistance develops over decades before your blood sugars ever go up, and then type 2 diabetes is diagnosed.

Insulin resistance is simply the result of having too much insulin around, either secreted by your pancreas (endogenous), or injected by you (exogenous) which is when you already have diabetes. When you have so much insulin around, your body becomes “resistant” to it. Simply, what this means is that the insulin no longer works very well, so your body needs more to do the same job.

Before we discuss why insulin resistance leads to diabetes, we need to discuss insulin briefly. Insulin is a hormone that attaches to the surface of a cell and allows sugar to pass from outside the cell to the inside, so the sugar can be used as fuel. We would die without insulin, so it is obviously very important. Insulin is also a fat storing hormone, so the more of it we have around the more body fat we store. So, we only need enough insulin to do its job, no more, no less.

So, what happens years before somebody develops type 2 diabetes, is that they develop insulin resistance. Specifically, what happens is when a person eats a lot of excess calories, which is easy to do on the Standard American Diet (SAD), they gain body fat. We all know this, but then what happens is that once the fat cells are full, which does not take long, the fat

starts to accumulate in the muscle cells as well. Fat inside the muscle cell starts to inhibit insulin's ability to do its job. Remember insulin needs to attach to the outside of the cell to "unlock" the door so sugar can get inside. The fat inside the muscle cell acts like "gum" in the lock so insulin "the key" cannot do its job. To compensate for this, the pancreas (where insulin is made) starts to secrete more and more insulin to overcome this inability of insulin to do its job. And you recall I mentioned earlier that insulin is a fat storing hormone, so the more of it we have around, the more body fat we store. As you can see, this is a cycle that is counterproductive. As more fat in the body accumulates, that leads to more fat inside the muscle cell, which leads to poor insulin performance, which again leads to more insulin needed to do the job, which again leads to more fat stored; so, it is a self-perpetuating cycle.

The fat inside the muscle cell that is most responsible for this is saturated animal fat. So, just about any food from an animal source, especially those with the most saturated animal fat, such as animal muscle (beef, chicken, pork, poultry, fish, crab, shrimp, etc.), cheese, eggs, butter, and other dairy products. The reason for this is that these fats create toxic breakdown products (ceramide and free radicals) inside the cell that increase inflammation and inhibit insulin signaling. (Simply these are the details of the "gum in the lock," analogy.)

On top of the previous self-perpetuating cycle, another cycle develops. As fat fills up the fat stores and muscle cells as we discussed previously, fat starts to accumulate in the liver. This is a problem in of itself, as fat can cause liver cancer, and so it can also cause liver failure. In relation to diabetes, we first need to

discuss one of the many functions of the liver. The liver stores sugar, and one of its jobs is to release stored sugar when we are not eating, so we can keep our brains alive. The brain can only use sugar for energy. When we eat food, our pancreas secretes insulin. When we don't eat, the liver releases stored sugar as mentioned. When we are eating, the "normal" liver stops releasing stored sugar, because we don't need it. When fat is clogging up the liver it keeps releasing stored sugar all the time, even when we are eating. So, the liver essentially becomes insulin resistant too. The result of this is the pancreas kicks out more insulin to cover the higher blood sugars, which again feeds into the self-perpetuating cycle of more insulin means more fat storage, which then leads to more fat in the liver. Very frustrating, isn't it?

And if this second self-perpetuating cycle wasn't' enough, a third factor comes into play and ultimately leads a person to develop type 2 diabetes. The pancreas, where insulin is made and secreted, starts to get filled with fat too, and the result of this is the fat starts to destroy the beta cells, which are the cells that make insulin. The result of the beta cells being destroyed as you can imagine is the decreased production and amount of insulin, which then leads to the blood sugars rising, and type 2 diabetes being diagnosed.

So, in order to potentially cure type 2 diabetes, we need to put this process in reverse. More accurately we need to, 1. Get fat out of the muscle cell, and 2. Lower insulin levels in the body, which you have learned will help to get fat out of the muscle cell. Both will help to make insulin work normally, so it can do its job.

In order to achieve both #1 and #2 we need to not only decrease or better, “stop” eating saturated animal fat, but we need to decrease or stop using some diabetes medications as soon as we can. The latter may seem confusing to you, as you have been told to take these diabetes medicines, including insulin to lower your blood sugars. Using these medicines is important, and if you are not going to fix the cause of diabetes, which is common in traditional diabetes care, you do need to take them. But if you want to address the “cause” of type 2 diabetes, it helps to decrease or get rid of them. Let me explain.

Sulfonylureas, like glipizide and glyburide cause your pancreas to secrete more insulin, and the insulin you inject increases the total level of insulin in your body, which you have learned adds to more fat storage and again fat in the muscle cell, liver and pancreas. Sulfonylureas and insulin, as well as some other diabetes medications lead to weight gain, which is not helpful in reversing the disease. Metformin (Glucophage), which is commonly prescribed, does not seem to be a problem, as it works in the liver to decrease the amount of stored sugar that is released, so has the potential to be helpful. There are some newer diabetes medications that may not necessarily get in the way of reversing diabetes, and may be helpful, but tend to be very expensive and have a lot of side effects.

For those with diabetes currently on insulin, we do need to continue to use insulin while we are making dietary changes to potentially reverse diabetes, as we cannot let the blood sugars get too high. If you are on insulin, you will be instructed on how to do this. Even more important than preventing your sugars from getting too high, is preventing them from getting too low,

as making dietary changes while staying on the same doses of oral medications and insulin can cause hypoglycemia, which is far more dangerous, at least in the short term.

So put simply, the primary cause of type 2 diabetes is consuming excess calories, as well as the consumption of saturated animal fat. The Standard American Diet (SAD) is loaded with high calorie dense foods, as well as foods filled with saturated animal fat. Meat, cheese, eggs, other dairy products, added oils, refined sugars, flours, processed foods, and fast food.

The foods that are the solution to curing and preventing type 2 diabetes then are foods that are low in calorie density, as well as having no saturated animal fat. Those foods are fruits, and vegetables, as well as whole “starch” plant foods such as potatoes, sweet potatoes, beans, brown rice, and other whole intact grains. Foods such as nuts, seeds, pasta and whole grain bread may need to be minimized, at least initially, as even though they are healthy choices, they are high in calorie density.

You may be confused about eating starches such as potatoes, rice and pasta when it comes to your diabetes, because many diabetes educators and nutritionists say not to eat these foods because they raise your blood sugar too much. The first thing to understand is that every food raises your blood sugar, because a rise in blood sugar is what triggers insulin secretion. The second point is that this advice is given under the context of “controlling” diabetes, not “curing” diabetes. Just because a food raises your blood sugar more than another, does not mean it is the “cause” of diabetes. In

history, including today, populations that eat a lot of whole plant foods (starches, fruits and vegetables) not only have much lower rates of diabetes, but the people that eat “only” these whole plant foods have virtually no diabetes.

The reason for the negative view of starch is very complicated, but it has to do with the glycemic index. The glycemic index is a scale that measures how quickly a food turns to sugar, and thus how much insulin is needed to cover the resulting rise in blood sugar. The glycemic index is a useful tool, but is “only” a tool, not the key to health, or in curing the disease of diabetes. An interview with one of the physicians (Dr. David Jenkins) who was involved in creating the glycemic index, said that the glycemic index has been used far beyond what it was intended, and unfortunately has done a lot of harm to human health. It was intended to show that white bread and other processed refined foods that have a high glycemic index are to be avoided, but not to avoid whole plant foods. A more specific example is that a carrot has a higher glycemic index than broccoli, so eat more broccoli than carrots, but not to avoid carrots specifically. So, utilizing the glycemic index often leads people to think they should eat more beef or bacon, rather than carrots or fruit, which is not what it was intended to do.

So, to prevent and reverse type 2 diabetes:

1. Eat mostly whole plant foods such as potatoes, sweet potatoes, beans, intact whole grains, with a wide variety of fruits and vegetables.

2. Greatly reduce or eliminate meat such as beef, pork, chicken, fish, other seafood, eggs, cheese, added oils, and refined sugars and flours that are found in processed foods and fast foods
3. Be careful not to overdo it on nuts, seeds, pasta and bread, at least until you are at a healthy weight and have reversed your insulin resistance and thus type 2 diabetes.

Your future health, wellness, longevity and quality of life depend on it!

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Footnote: In more recent years, according to the American College of Lifestyle Medicine the term “curing” diabetes has been changed to putting type 2 diabetes into “remission.” This is secondary to the fact that if you went back to your prior way of eating, the type 2 diabetes would come back. There are many published case control studies of individuals who have put their type 2 diabetes into remission and are now off all their insulin and other diabetes medications with normal blood sugars.