

Hypoglycemia (Low Blood Sugar)/Diabetes

EARL'S STORY

"I would become irritable every morning at about ten o'clock and have a cup of coffee with a sweet roll. In about 20 minutes I would feel good again and people in the office wouldn't avoid me. My cantankerous performance would repeat itself in the afternoon about 2:30 or 3:00 o'clock. Virginia, my secretary, solved it for me with a cup of coffee and a snack.

This pattern of life was the old good news and bad news story. The good news: By eating, I kept from biting people's heads off. The bad news: I got increasingly overweight.

One day at work had been particularly stressful. There was no time for my customary coffee break and roll. I vividly remember looking at my watch—it was 11:30 A.M.—I got up from my desk and passed out right there. I woke up with a rescue-squad fireman strapping me onto a stretcher on wheels.

In the hospital my doctor made it very clear: "Earl, you've got what we call hypoglycemia, that's low blood sugar." He then went on to explain how I produced too much insulin, which caused my blood sugar to drop. His solution: "Carry a package of hard candy and keep sucking on one. It will keep your blood sugar up."

He was right. My disposition changed—no more anxious periods or irritable actions with employees, but I got a little heavier. By now my five-foot eleven-inch frame was supporting about 230 pounds.

My doctor's solution was fine during the day, but by about 9:30 in the evening I was either asleep in front of the TV, or in bed building "ZZZZZs." I didn't realize what an effect this had on my wife. Our social life had dropped to zero.

One morning at breakfast, my wife Nancy told me that a friend had said I was treating my high blood sugar all wrong. Her friend had been to a Shaklee meeting where the topic was discussed, and she told Nancy that the worst thing for low blood sugar is sugar. This didn't make any sense to me, and I repeated what my doctor had said. She answered by putting a can of Instant Protein and a bottle of Vita-Lea on the table. She asked me if I would at least try the protein and Vita-Lea every morning for a week and not eat any candy or sweet rolls before noon. To keep peace in the family and preserve 15 years of marriage, I agreed, but I wouldn't let her mess with my cup of coffee, no how.

Following this plan wasn't any fun. I felt bloated, I burped, and wasn't hungry at lunch, but I got through the morning without candy and rolls, and just one cup of Virginia's excellent coffee. I decided it was a case of mind over matter and the effects would pass within a week.

By the end of the week I noticed two definite changes. I had lots of energy all morning. In fact, I could go until about 2:30 p.m. without a snack. That's the good news. The bad news was that I felt constipated.

Nancy's friend had an answer for that, too. She said the extra nutrients I was getting caused mild constipation and she

had just the solution: Herb-Lax. She told me to take one-or-two each day. She even showed Nancy how to brew an Herb-Lax tea with a little alfalfa thrown in. This was crazy! I told her alfalfa was for horses. She pointed out—correctly I might add—that I wasn't eating any more candy. I hadn't even noticed.

Nancy suggested another test: "Why not have Virginia mix you an Instant Protein about noontime, just before lunch?" This was a conspiracy. I agreed because I was feeling quite good and noticed that my pants were just a tad looser. I decided to give it the "old college try."

Another week of twice-a-day Instant Protein and I felt great. Nancy and I went to a movie one night and I didn't fall asleep. I started watching Johnny Carson—he comes on at 11:30 P.M. I finally worked up the nerve to weigh myself. I was down to 220 pounds and I hadn't even been on a diet.

Nancy was overdoing it, however. She had me taking Vita-Lea, B-Complex, vitamin C, and drinking a tea made with Herb-Lax and alfalfa. I became concerned that my hair would turn green and I would either "neigh" like a horse or "moo" like a cow. Nancy said neighing was okay, but if I moored, she'd cut back on the alfalfa."

WHAT'S GOING ON HERE?

Earl is typical of many people all over the world. They get caught in a vicious circle where they almost become their own worst enemy. Everyone giving him advice was right in some ways and wrong in others. Fortunately for Earl, his wife listened to the right person and he followed her advice.

Low blood sugar results from the body producing too much insulin. Insulin is a hormone that helps blood sugar, glucose, get inside the body cells where it's used for energy. When our blood sugar rises after a meal or a snack, the pancreas releases some insulin, so it will be metabolized for energy. The object is for just enough insulin release so the blood sugar will return to normal. Normal is from 80 to 110 milligrams of glucose per deciliter of blood. Each person has a level in this range, that's normal for them. However, in some people, and for some dietary reasons in all people, too much insulin is sometimes produced and their blood glucose will drop below 80. Normally the body responds by mobilizing a storage form of glucose called glycogen, that causes the blood glucose to bounce back to normal.

However, blood sugar doesn't always respond so well. Sometimes the blood sugar remains low and this sends a signal to the brain. Our brain relies almost exclusively on glucose for energy. Unlike other tissues, it doesn't use fat, and only some parts of the brain can use a few aminoacids for energy. So, when blood sugar drops below a level the brain considers normal, it becomes concerned.

The initial symptom of low blood sugar is anxiety. Anxiety causes most people to eat, and eating sets things right for the brain. However, if you're like Earl, you couldn't eat, because you have to set an example, or your job won't allow it until a normal coffee-break. So, the next action is for other centers in the brain to swing into action. Irritability is the next outward symptom. In short, the person is hard to get along with.

When blood sugar drops low enough, you can literally pass out, like Earl did. This is rare, however, because people usually eat when they get the early symptom of anxiety.

A common outcome of low blood sugar, hypoglycemia, is overweight. Overweight, like in Earl's case, develops because the person and the people around the person realize, that if you keep eating, the anxiety and irritability never develops. But this excess weight creates two long-term problems: diabetes and high blood sugar.

As weight increases, the body's cells become less sensitive to insulin. Consequently, the pancreas compensates by producing more insulin. Eventually, the pancreas can't keep up with the demand and medication is required. Initially the medication is used to prod, or boost the pancreas to produce more insulin. Finally, the pancreas becomes exhausted, and the person needs to take insulin by injection.

A secondary problem develops because, in some people, the kidneys respond to excess insulin by not performing their task correctly. When the kidneys go awry from insulin, high blood pressure results. Hence, the diabetes is complicated by a need for more medication to treat high blood pressure.

Several dietary solutions will bring this vicious hypoglycemic cycle into line. Get your weight down to normal! Don't eat foods that contain sugar without fiber! Follow a high protein diet! I'll review each of these solutions in detail.

Earl's doctor was correct when he said Earl needed sugar. He was wrong when he told him to eat candy or, in reality, sugar. He should have told him to eat an apple, a carrot, or some other fruit; protein would have been an even better recommendation. Fruits and vegetables contain simple sugars cloaked in a fiber matrix, that releases them into the blood slowly. Somehow the slow release of sugar is a signal to the pancreas to moderate its insulin production, so it doesn't overshoot its target.

Protein, especially Instant Protein, supplies amino acids. Some amino acids are used inside the cell for energy and don't require insulin. Hence, you get energy without using your circulating blood-glucose. This energy from Instant Protein is sustained over a long period and doesn't cause an insulin surge, or blood-sugar drop. Consequently, Earl found that he didn't need the candy or sweet roll and probably didn't even need the coffee.

Finally, people who are overweight and hypoglycemic owe it to themselves to lose weight. Excess weight taxes all the systems, but especially the pancreas and kidneys. Adult-onset diabetes—diabetes that develops in adults—is usually the result of the hypoglycemic's excess eating cycle. Maintaining normal weight is absolutely essential for these people to achieve good health.

RETURN TO EARL

Earl continued losing weight, but decided to go for it more aggressively, so he followed the Shaklee Slim Plan and brought his weight down to 185 pounds. He continues using Instant Protein, the supplements, and following a good diet.

His diet falls into the low-fat, high complex-carbohydrate category. A diet like this includes lots of vegetables, pasta, fruit, and other foods that are high in fiber and complex carbohydrates. He selects low-fat meats, such as chicken and fish, so he doesn't waste calories and risk putting weight on again.

Earl continues to work ten- to twelve-hours a day and has as much energy at the end of the day as he does at the

beginning. He and Nancy spend more time together, go out regularly, and he never falls asleep in front of the TV or at the movies.

MARILYN'S STORY

Marilyn is a lovely lady, younger than Earl, who was trapped in the hypoglycemic cycle. Her doctor gave her a glucose-tolerance test and concluded she had all the symptoms of hypoglycemia. His approach was much better than Earl's doctor's, but flawed for another reason.

"He told me to eat lots of small meals of high-protein foods, like cheese," Marilyn said. So, she snacked on cheese, ate hamburgers without a roll, and, in general, shifted to a low-carbohydrate, high-protein, high-fat diet. She kept her blood sugar normal, but also kept her weight up as well. At about five-foot six-inches, Marilyn weighed over 180 pounds, but her blood sugar was normal. She exchanged hypoglycemia for looking like a blimp.

She finally took the same course that Earl did: Instant Protein, and the Slim Plan to get her weight down. She now weighs 130 pounds. Marilyn's task was much more difficult than Earl's, because she had to shift from high-fat foods, such as cheese, to high complex carbohydrate vegetables, like potatoes, with sour cream, or broccoli. When you haven't eaten a lot of fruit and vegetables, it's tough to get started. Here's how Marilyn put it. "There were times when I craved hot-dogs with mustard like an ex-smoker craves a cigarette; or I wanted to sit down with a big chunk of cheddar cheese. Somehow, an apple just didn't have the mouth feel that I wanted. But after about a year, I found the foods that I used to crave, repulsive. In fact, if I eat a hamburger now, it feels all slippery and full of fat."

IS IT IN THEIR HEADS?

No. Earl and Marilyn are typical examples of many people. Food is all around us and most of it is the kind of food that contains sugar without fiber, or sugar with very little protein. Alternatively, it's mostly fat. Most food advertising is directed at foods with little or no nutritionally redeeming features, except low calories or low fat.

This trend is not confined to the United States. On a train ride on Japan's "bullet train" from Tokyo to Kyoto, a 3-hour drive, you are presented with food for sale, on average, every three to five minutes. A few of the offerings are fine; for example, fruit, but most of the items offered are high-sugar snacks.

Some people would say that artificial sweeteners are the answer. They aren't. All they do is provide the illusion of sweetness without the calories and have nothing to do with how we get our calories. We still require fiber, carbohydrates, protein, and some fat, all in the correct proportions. These requirements necessitate good food choices. Making things sweet doesn't fulfill the need, and may actually give young people, especially children, the wrong impression about food, if not life in general.

ADULT-ONSET DIABETES

Warren's Story

Warren had probably been hypoglycemic most of his life, even though it had never been diagnosed by a doctor. He

compensated for the problem by snacking frequently in between meals. By the age of 45, he was overweight, with a somewhat large midsection—in other words, he had a big gut. The ratio of his waist to hip measurements would probably have been closer to two than one. You can figure out this ratio by measuring your hips and waist with a tape measure, and then dividing your waist measurement by your hip measurement. For good health, the ratio should be less than one.

When your waist to hip ratio is just over one, you've got a slight paunch; at a ratio of two, you're fat. The higher the ratio, the greater the paunch. A paunch is a good predictor of a person who is likely to get adult-onset diabetes as they approach 50 years and older. Adult-onset diabetes is often called Type II diabetes.

"I had a physical at work and the doctor said he didn't like my blood sugar level. The sugar showed up first in my urine, so he did a blood test. The doctor put me on a diet and followed up every two weeks for about six weeks. Same result: high," Warren said. He also admitted that he didn't do well with the diet. I asked him if he felt sick or had any symptoms.

"I was thirsty all the time. A drink of water only quenched the thirst for a few minutes. The doctor told me this was consistent with high blood sugar and adult-onset diabetes."

Warren tried to stick with the diet, but like many people, it's hard to follow a diet when there's no obvious reason. He couldn't stick with it well enough to get his weight down more than a few pounds, compared to the 30 pounds the doctor wanted him to lose. Consequently, the only solution was to take drugs. Oral medication, not insulin, kept Warren's blood sugar within acceptable limits. However, it took the threat of big-league medication to convince Warren that nutrition was worth a serious try. A conversation with his doctor, after being on oral medication for one year, was the jolt that got him started on nutrition.

"He didn't like the way my blood sugar kept creeping up and suggested I might have to go on insulin injections. I had gained back the few pounds I had lost plus a few more, and hadn't been watching my diet. Since I was taking drugs, I didn't think I'd have to worry and became complacent about what I ate. However, the thought of giving myself insulin was more than I could handle." Warren still sounds apprehensive when describing the idea of giving himself insulin injections.

Warren's wife took charge. She bought enough Shaklee Slim Plan to put him on a strict diet plan. His regimen included two Slim Plan drink mixes daily and one meal which was almost vegetarian. She also let him have fish and chicken. The weight started coming off. If he cheated, he would have Slim Plan three times a day. His wife didn't compromise on the program.

"I followed this plan for six months. I also took Vita-Lea, B-Complex, vitamin C and Daily Fiber Blend. I lost, on average, just over one and a half pounds each week. In the first few weeks the pounds went off fast, then the weight loss slowed down. In six months I was 36 pounds lighter. I was doing so well, that I decided to lose 15 more pounds. I felt better than I had in 20 years."

After losing about 25 pounds, Warren was able to stop medication. His blood sugar stayed in the normal range without the drugs. His doctor encouraged him to maintain his diet program even if he didn't lose any more weight.

Warren shifted from taking Slim Plan to taking Instant Protein as he became trim once again. Now his waist to hip ratio is just over one, which is fine for him, after all the years of being fat. He feels fine. He doesn't stress his body with excess weight or sugar. His daily plan consists of Instant Protein, Daily Fiber Blend, Vita-Lea, B-Complex, and other supplements. He has lots of energy, normal thirst patterns, and feels good.

"Now that I don't have high blood sugar, I can feel the old low blood sugar return if I don't eat right," he said. He was explaining that if he eats the wrong food, his body produces too much insulin and his blood sugar drops, anxiety returns, and his first thought is to eat something. His nutrition plan with Instant Protein and Daily Fiber Blend keeps this from happening.

DIABETES

Jean's story

"I was told I was a diabetic at age 25. My doctor said I'm a 'brittle diabetic,' which I guess means it's tough to manage my blood sugar. He insisted I use insulin twice daily. I mixed two types of insulin because it seemed to work best. But I didn't like taking injections then, and I still don't."

As a young 33-year-old mother, Jean was aware of the fact that she'd be dependent on insulin all her life, but had lots of trouble keeping her blood sugar in line. She tried to follow a good diet and stick with diabetic exchange lists. But when she tried a Shaklee nutrition plan, she found out she could feel really good.

"I started on Instant Protein, took other supplements and Herb-Lax, and had more energy and felt better the first day. Pretty soon I was able to get along with about two-thirds my regular insulin."

Jean told her doctor everything she was doing. She expected trouble, because he always told her that she didn't need supplements. To her surprise, he encouraged her to keep the program going. He said she looked better than ever, he liked her spirit, and her tests were first rate. She promised him that she'd watch her blood sugar closely and experiment carefully.

"I found that if I used Instant Protein twice a day and ate vegetarian meals, I could get by with half my normal insulin. I regained the energy I had before I was declared a diabetic. Everyone noticed how good I felt and they remarked on how good I looked."

Jean learned something else about herself during her experiments. She joined a health club. When she exercised regularly, used Instant Protein and Fiber Blend twice daily, she could get by on even less than half the insulin she had used before she started her nutrition plan. But that wasn't the best part. Sure, she had more energy, but she had no "highs" and "lows" that the doctor told her are characteristic of a "brittle" diabetic. Jean felt consistently good and had steady energy all day.

WHAT GOES ON HERE?

Warren and Jean are typical examples of two health problem extremes, adult-onset diabetes and insulin dependent diabetes, that are constantly increasing in our society. Since both of these problems are increasing faster than the

population, and there is no germ causing them, something about our lifestyle is involved.

Many people who tend toward hypoglycemia when they're young, and gain weight like Warren did, become adult-onset diabetics when they're older. This happens because certain people become insulin insensitive when they gain weight. That means that their cells require more insulin than normal to use blood sugar effectively. A side effect of this problem is high blood pressure. Warren was typical, but the problem continues to strike people, especially men, a little younger each year.

Adult-onset diabetes comes in two forms. Either the pancreas doesn't produce enough insulin, or the body becomes insensitive to the insulin. If the person is slim, it's usually because the pancreas has run out of steam. If the person is overweight, the pancreas usually produces enough insulin, but the body's cells don't respond to its presence. Either case calls for more insulin output as a short-term solution. Diet is the long-term solution for overweight people. Slender people usually need medication.

Medication usually involves a drug which "kick starts" the pancreas into producing more insulin. This is fine for awhile, but after prolonged boosting, the pancreas runs out of steam. When the pancreas wears out, insulin injections are the only alternative left.

However, over 75 percent of adult-onset diabetes can be completely eliminated by getting the waist to hip ratio down to about one. In short, lose weight—return to a flat stomach and the correct weight. There's no compromise.

Protein is an ideal food program, because it provides much of its energy from the amino acids without a need for insulin. This means the body can get some energy without calling on the pancreas to produce more insulin.

Fiber is an ideal support supplement, because it modulates sugar as it enters the digestive tract. All food has some simple sugars, and fiber slows the rate at which these sugars enter the blood. This sends a signal to the brain that says "little sugar coming," and not the wrong signal, "big sugar load," so the body produces a modest amount of insulin at a slow rate. This helps prevent the low blood sugar that complicates the whole process.

Jean's case is typical of true diabetics that develop diabetes as adults. It's as if the pancreas just shuts down at a certain time. Sometimes the pancreas starts producing a little insulin from time to time. Jean's doctor did an excellent job of training her to manage her difficult case. By using two injections daily, she manages her blood sugar better and avoids many side effects of diabetes.

Once Jean started experimenting with nutrition, she discovered that diet and insulin form an unbeatable team to manage diabetes. By using nutrition teamwork, her body has the energy it requires with minimum insulin. This reduces the side effects of diabetes even more. Teamwork involves protein, fiber, exercise, a good, high complex-carbohydrate diet, and a solid supplement plan.

It's teamwork because it keeps all body organs functioning at their optimal levels. And by keeping dietary fat to a minimum, Jean avoids the problems of high blood fat that usually dog diabetics as they get older. Two outcomes of the high-fat diet that many diabetics follow, is vision deterioration and cardiovascular disease, with a high risk of stroke.

ABOUT THE AUTHOR

James Scala was educated at Columbia (B.A.), Cornell (Ph.D.), and Harvard (Post-doctoral studies) Universities.

He has spent his career in research, research management, and teaching. His accomplishments include over fifty published papers on research in nutrition, biochemistry, and biology. His teaching includes courses for undergraduate, graduate, medical, and dental school students.

As a research manager, Dr. Scala held positions at Procter and Gamble, Owens-Illinois, Unilever, General Foods, and was the Senior Vice-President of Scientific Affairs for the Shaklee Corporation. He now devotes his energies to writing and speaking for the general public.

Dr. Scala lives with his wife Nancy in Lafayette, California. For recreation, they sail the ketch La Scala from its home port on San Francisco Bay.