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**Understanding Your Test Results**

	<u>Fasting Blood Glucose</u>	<u>Oral Glucose Tolerance Test (OGTT)</u>	<u>Random Blood Sugar (taken any time of day with or without fasting)</u>	<u>A1C</u>
<b>Preferable Result</b>	<b>Less than 100mg/dl</b>	<b>Less than 140 mg/dl</b>	<b>Less than 140 (even after eating a large meal)</b>	<b>Less than 5.7%</b>
<b>Pre-diabetes</b>	<b>100-125mg/dl</b>	<b>140-199mg/dl</b>	<b>140-200</b>	<b>5.7% to 6.4%</b>
<b>Diabetes</b>	<b>126mg/dl and greater</b>	<b>200 mg/dl and greater</b>	<b>200 or greater</b>	<b>6.5% or more</b>

**Questions & Answers**

**Q: I have had type 2 diabetes for 15 years. Although my fasting levels are generally higher in the morning, two weeks ago I noticed a few levels approaching 240 fasting before breakfast. For example, last week my morning level was 235. I ate a meal that had eggs and turkey sausage and coffee without sugar. My blood sugar dropped to 196 after one and a half hours. I took a walk for 20 minutes and my sugar level was 127. Then I had another coffee and an hour later my sugar was 190 again. Why would this happen?**

**A: Food intake is a most powerful player here. It is common for blood sugar levels to be elevated in the early morning due to hormonal activity during the night, then begin to drop during the day with usual daytime activity. Then, assuming eating is well-controlled, daytime levels can be in normal ranges. You should clarify with your physician what the target glucose goals are for you for both fasting and 1-2 hours post meals. The morning protein meal you ate converted into glucose at a far slower rate than if you had eaten a carbohydrate based meal, so it is not surprising that you saw a drop in levels as you did after that meal. Coffee is often listed as a "free food" that does not affect blood sugar levels but you can see this may not be the case. It does stimulate the central nervous system and can cause some short term rise in levels.**

**Q: I was diagnosed with type 2 diabetes five months ago. I have been testing and trying to determine what is working and what is not. I've noticed recently I could have a double**

**cheeseburger and fries and have a reading of roughly 140 two hours after. Yesterday I vigorously tested and found, 1.5 hrs post was 122, 2 hrs post was 142, 2.5 hrs post was 168, 3 hrs post was 189 and finally 3.5 hrs post was 85. A 104 pt drop in 30 minutes. Should I still be testing two hours after a meal when I was apparently at my highest three hours after?**

**A:** This all depends on what you are eating. A double cheeseburger will show its greatest impact in that 3-4 hour time frame because proteins and fats start to peak into glucose 3-4 hours post meal. Most carbs peak by 1 hour after eating and are pretty much through the entire digestive process 2 hours after eating. If you eat few carbs and primarily meat and fats, then you will peak later. This is why in most structured meal planning, you will see meat intake to be about 3oz./serving, gradually increased for high calorie meal plans required by larger individuals. Get a good balance with your foods to where you include lots of veggies/higher fiber foods and smaller amounts of refined carbs/very low fiber starches (white breads, etc.). Testing after different times with different foods will give you a better idea of what raises your glucose levels more quickly.

**Q: Can the hot weather have an effect on a person's blood sugar readings?**

**A:** High heat, particularly warm weather, does not directly affect your glucose levels, but it can lead to changes in your daily habits: eating less and not adjusting medication, being less active, and possibly over exerting yourself. These situations can lead to either higher or lower levels. Dehydration can set in more readily; don't wait for thirst to be your clue. Carry water at all times. Sunburn is stressful to the body and can elevate glucose, so plan your sun exposure and exercise for earlier or later in the day. Remember also that high heat can affect meter strips and medications, especially insulin. Be smart with the heat, and you will manage your glucose much better this summer.

**Q: When my type 1 diabetic son goes low....under 70, if we give him 15 grams of carbs, how much does it bring his levels up by?**

**A:** 10-15 grams is targeted to elevate glucose levels 30-45 mg/dL. Assuming this is from quick acting choices such as 4 oz. juice, 3 glucose tabs or 6 oz. of milk; his levels should come up quickly and be tested at 15 minute intervals until the target is reached. For those on insulin, it is especially suggested to treat once blood sugars drop below 72mg/dL. I suggest you enroll in diabetes management class if you have one in your area, or at least be very clear from your medical team what the basic targets and management skills are for your son.

**Q: Why does my blood sugar level go up when I do yard work? I drink water all the time and eat my meals on time, but when I do yard work, like digging and planting and cutting the grass, my sugar levels rise.**

**A:** The first 30-60 minutes of exercise, especially in warmer weather, can raise levels. They should come down after that. Try checking right after your yard work, then again in around 90 minutes and see if you have a drop.

**Q: I just got a new glucose monitor and my numbers are lower than with my old monitor - as much as a 23 point difference. I am curious if you know why this would be?**

**A:** I'm assuming you have made sure your old strips are up to date and calibrated if necessary? I suggest you call both companies for an explanation, and then perhaps assume the newer meter is giving more accurate readings. You can verify this by bringing your meter to your physician's office next time you go and test against their machine if they do this in the office. There is often some difference between meters, but that is a very wide range.

**Q: I think I may have diabetes because my fasting glucose is 140 but my doctor said I do not have diabetes. I get light headed, dizzy, blurry eyed, and my hands shake if I don't eat a snack with sugar in it between meals. Please help, my doctor says I'm fine.**

**A:** You clearly have blood sugar imbalances, going from some moderate highs to lows. The shakiness, etc. is hypoglycemia. Has your doctor done a glucose intolerance test on you yet? I suggest the one that shows your glucose levels at 4 intervals 2-3 hours apart. You may be higher in the morning and then going low daytime. Eating unrefined foods, lean protein, and more veggies than starches are really important for you right now. Eating 5-6 small meals/snacks should be your pattern. An apple and 1 oz. of cheese or 1 tbs. of nut butter is an idea for a snack. Learn where protein comes from and include it more. Beans have a good source of plant protein and fibers that stick with you longer and break down into sugar (as all food eventually does) in your blood stream more slowly. This is a good thing, as you won't get a low blood sugar nearly as quickly. Candy, juices, etc. are all turned into blood sugar very fast; they don't stick with you. Think of these simple sugars as very short term fuel. You may need a 2nd opinion. Eating correctly will help you straighten this out.

**Q: My Dr. said my glucose number should be between 65-99. I am a 77 1/2 year old female who recently started experiencing low blood sugar episodes, especially at night. If my number when tested is 103 and lower, I shake, sweat and am generally miserable till I drink orange juice, etc. Is it possible that my count needs to be higher?**

**A:** I do think you need to revisit this with your physician, as clearly you seem to be requiring a higher blood sugar level. A textbook normal fasting glucose is closer to 80; 65 would be too low for many people. Keep close track of your intake, and be sure to eat protein at each meal.

**Q: I was recently diagnosed with type 2 diabetes and manage with diet and medication. My primary care doctor told me when my blood sugar gets low and I get shaky I should take a pinch of table sugar. My question is, should I eat something like an orange or something other than table sugar to raise my blood sugar? It just seems counterproductive to watch what I eat all day, every day, and then take some sugar to even out my blood.**

**A:** Low blood sugars are better treated by drinking 4-6 ounces of milk if you are a dairy consumer, 4 ounces of juice, or some sugar equivalent to equal 15 grams. 3-5 Lifesaver candies often does the job. However, the goal is not to have to eat more, but to lower your medication requirements. As you continue to take charge of your lifestyle and how different foods affect your levels, episodes will be less frequent. When you are just beginning to show the signs of low blood sugar, milk is a good choice (this includes soy milk) because it has the

right carbs to get into your bloodstream quickly, but also has some protein to digest at a slower rate. I suggest you try to find some diabetes classes in your area to learn all you can on how to manage, especially eating.

**Q: My fingers are sore. Is there any other place on my body I can use to check my sugar?**

A: Forearms are the next place you may be able to go. However, you may want to discuss this with both your meter company and your physician to see what the difference may be between finger/forearm. I trust you are testing the sides of your finger pads, and not directly on them.

**Q: Are there any devices to test blood sugar that do not require the traditional needle and test strip?**

A: Yes, there are, but by prescription. The GlucoWatch has been in the making/perfecting stage for years, and still requires some traditional backup finger sticking due to some detected inaccuracies. Worn like a watch, it can give an idea of 24/7 fluctuations in blood sugar. The MiniMed continuous glucose monitoring system is worn under the abdominal skin, recording glucose levels for 3 days. The results must be downloaded by your physician. This is a good tool for fine tuning your protocols. The Lasette is a \$1000 device that can draw blood with a laser prick, so it is less painful. There are devices for alternative site testing, giving the fingers a break. You can Google any of these mentioned to see if any fit your situation.

**Q: I'm a type 1 diabetic and going through menopause. My blood sugars are consistently high whereas before they were on target. Does menopause cause my body to resist insulin?**

A: Hormonal changes can affect your glucose levels, as you are experiencing, which is not exactly insulin resistance. It is important during this time that you eat foods as unrefined as possible and stay active to reduce any potential symptoms like sweats and hot flashes. This will help to reduce glucose fluctuations as a result of less fluctuation at the nerve levels. You may want to eat the exact same diet every day to see what is due to hormones versus diet, etc. In addition, nutritional compounds for menopause may help with balance.

**Q: I have type 1 diabetes and whenever my blood sugar is low I feel as if my thinking process is different and I tend to feel anxious. Then once my sugar gets back up I don't feel that anxiety anymore. Does that have to do with blood sugar levels affecting my thinking?**

A: These are symptoms that occur with most people with low blood sugar. Remember, food is fuel for the body, and the form of our food is sugar, which you need to have enough of in your body for your brain to function normally. With low blood sugar levels, anxiety, lack of focus, gloom-to-doom thought patterns can manifest. This is very true with hormonal imbalances as well. Many kids begin to show signs of this with puberty and poor lifestyle/eating patterns that abound in today's society. The important thing here is that you know how to fix these symptoms. Better yet, keep yourself from getting to that point by always having something with you to elevate your blood sugar. Keeping a pack of glucose tabs with you at all times gives you a set dose of carbs to take when you first feel signs coming on. Dry roasted nuts also carry well to hold off hunger.

**Q: My friend's meter is giving me a different reading than my meter. I use the control solution BUT is that really accurate?**

A: It is not uncommon to get some difference in readings between meters, but it should not be too broad a span. You might consider taking your meter to your physician's office at your next visit and see if you can test it against one of theirs. I suggest you also call your meter company and discuss your concerns. They do calibration studies and should be able to give you some solid answers.

**Q: I am on an 800-1000 calorie diet and my blood sugar readings are still 104-109. Shouldn't they be lower?**

A: I would first suggest that you are eating too few calories; this is not effective fat loss. It will most likely serve to alter your metabolism more than give you any long lasting results. Fasting blood sugars of 100-125 constitute a diagnosis of pre-diabetes. You would fall into this range. A goal would be to be less than 100 fasting. I suggest you get some guidance with a healthy eating plan for yourself, be active, and target long term body fat loss at a gradual pace as the way to effectively achieve your goals.

**Q: What finger should I use when testing? On two occasions I've had different readings from two different fingers.**

A: It should not matter which finger you use as long as you test on the side of the finger. Do not milk the finger; hold it upside down to let the blood flow to the tip. Readings may vary slightly. If the spread is wide, be sure you tested correctly in both situations. If you still get discrepancies, I suggest you call the 800 number on your meter and ask their advice.

**Q: What are the risks when blood sugar is 400 to 500?**

A: The intensity of the symptoms will vary between individuals. If these high blood sugars persist, some symptoms that may be experienced include dizziness, nausea, headaches, frequent urination, and hunger. In some cases, one may even experience Diabetic Ketoacidosis, a condition that if left unchecked, can lead to coma. This is generally more associated with type one diabetes. High blood sugars over the long-term precipitate complications such as organ and nerve damage.

**Q: Why does my blood sugar jump from 115 to 165 after eating breakfast?**

A: All food turns into sugar and carbs turn the fastest. It is normal for everyone's blood sugar to rise after a meal though folks without diabetes don't go over 140 as a rule. If your blood sugars had been closer to 100 before your meal, you would have been closer to a normal range. Also, it may have been the types of foods you ate. A breakfast that includes protein, such as an egg, and whole grains, such as a higher fiber toast may help to keep your numbers down. Check your blood sugars 2 hours after eating for a while so that you see how you are the rest of the day. This will help your physician in adjusting any medications you might be on. Keeping a very healthy lifestyle is your best ally for keeping those numbers down.

**Q: I had a blood test but did not realize that I was supposed to fast beforehand. I had two cups of the coffee in the morning, and a sandwich and chips for lunch. My results came back at 293. Is this an accurate test? Do I have diabetes? My doctor wants to put me on medication.**

**A: 293 would still constitute a diagnosis of diabetes, since it is over 200 - the limit for a random blood sugar, even without fasting. In my experience working with endocrinologists, the next step after “discovering” the high blood sugar would be to order an A1C test to measure an average over the last 3 months. An Oral Glucose Tolerance test may also be order to see how the blood sugars go over the course of 3 hours after a high carb load. If you have no other symptoms or uncontrolled conditions, a course of 3 months of focused diet/lifestyle changes may be put in place to see how far your numbers come down before starting medications. It is most important for you to get educated on eating for diabetes management. Exercising and working towards reduced body fat is usually also at the top of the list.**

**Q: My question is what is the normal blood sugar levels for a pregnant person fasting, immediately following a meal and 2 hours after? How many carbs can I eat?**

**A: The guidelines for gestational diabetes have gotten tighter. Those practitioners who manage their patients more tightly prefer a fasting glucose of less than 90 and 110 one-two hours post meal. The best rule of thumb for carbs is NOT to eat them in the morning if you do experience elevated blood sugars. This often means saving your fruit for lunch or later. How many carbs is dependent on your nutritional needs and caloric needs for your pregnancy. It would be helpful for you to have a consult with a nutritionist who understands gestational diabetes patterns. Once you and your physician have determined your blood sugar guidelines, a management plan should follow. Meanwhile, eat unrefined foods as much as possible, lean “flesh”, and minimize sweets and juices.**

**Q: Can having diabetes cause your blood alcohol levels to go up?**

**A: Yes, though generally this is more pronounced for those with insulin dependent diabetes. When the cells can't suck in the blood sugar due to insufficient insulin, the body breaks down fat for fuel and produces ketones, which can cross-react with both blood and alcohol tests to produce a positive result, even without a drink. Lots of ketones can cause a fruity breath, mistaken for alcohol, and cause a person to have symptoms of being intoxicated such as slurred words and dizziness. ALWAYS HAVE ID ON YOU THAT IDENTIFIES YOU ARE DIABETIC TO AVOID UNNECESSARY HASSLE AND GET TREATMENT YOU MAY NEED IN A TIMELY FASHION!**

**Q: I suffered what I believe was a low blood sugar attack with extreme dizziness and nausea. I take medication for type 2 diabetes. What should I do next time this happens?**

**A: It sounds like you did have a low blood sugar attack. It could be that you are not requiring as much medication, and/or you waited too long between meals. You should be checking your blood sugars and make sure that you know what ranges your physician wants you in. The idea is not to eat more to feed the medication, but to hopefully lower the medicine dose. Glucose tablets are good to carry with you in emergencies as the dose is then measured.**

Lifesaver candies can also work. The usual amount is 15 grams of carbs every 15 minutes until blood sugars come up.

**Q: Can sunbathing and high temperatures increase blood sugar levels?**

A: High heat can lead to dehydration, which in turn can cause high blood sugars. It takes 6 molecules of water to move one molecule of sugar from the blood stream, so the higher the sugar, the more water you need to drink. Extreme hot or cold temperatures can cause changes in the vascular system that can affect blood sugar and cause reactions.

**Q: Is a 132 glucose level, after a ten hour fast, high enough to be concerned about?**

A: Two fasting levels of 126 or greater is a diagnosis of diabetes. If this was a lab test, your physician should order another fasting glucose to confirm, and an A1C to get your average level over a 3 month period. Meanwhile, start practicing a very healthy lifestyle, understanding what food choices to focus on. In a nutshell, focus on eating lots of veggies, some fruit, legumes, lower starch, and fish or smaller amounts lean meat. BE ACTIVE! That is the best key to control.

**Q: Why is my fasting reading higher first thing in the morning than after I eat?**

A: This is the usual pattern for blood sugars: higher in the morning due to elevated hormonal and other factors during the early morning hours. During the day, activity tends to keep sugars under control if following a healthy, active lifestyle. Reevaluate your habits, with attention to your nighttime eating.

**Q: My fasting blood glucose is normal, but the A1c was 6.5. What would you recommend?**

A: I suggest to closely reviewing what you eat the entire day, and increase your activity level if necessary. If your fasting is between 80-90, great! If higher, then lifestyle habits certainly are what need to be addressed first. You may also request an Oral Glucose Tolerance Test to see what your blood sugar response is post-meal.

**Q: Why does my blood sugar get highest 3 hours after eating? One hour after eating my blood sugar is around 160-180, after 2 hours it is around 100-125. What's confusing is it goes up again after 3 hours post-meal to reach 140 then drops down again to 100, and stays at that level. Readings taken after fasting are between 90 to 110. Is this usual?**

A: Most of what you describe is usual, particularly depending on what you are eating. Is the 3 hour rebound the same daily? Do you monitor that often? If you are exercising or particularly active before that 3 hour measurement, that could account for a slight rise, followed by the drop. That is a normal pattern for the immediate effect of exercise on blood sugar. Are you on insulin? It sounds as though you may need to revisit your eating habits and tweak your medication program to help you start with an even lower fasting blood sugar.

**Q: I have type 2 diabetes and am having problems keeping my morning blood sugar to desired levels. My afternoon levels are usually in the normal range. I'm overweight, but I've lost about 27 pounds hoping to reduce my average blood sugar. However, this has not happened. What could this mean? Is my disease progressing?**

**A:** There are several factors that affect morning blood sugars. Often, with reasonable control of diet and exercise resulting in weight loss as you indicate, you do experience a drop. Is your diet as "impeccable" as you can make it? Nutritional supplements also can be helpful when professionally guided. Don't give up; keep up with your good work. Insulin resistance can be just that: resistive! For some people, if they don't follow a disciplined program, blood sugars will keep rising. Sticking to a healthy lifestyle will only be a win-win situation for you in the long run.

**Q:** I sometimes experience a rise in blood sugar levels whenever I am under a great deal of stress or am ill. Even if I'm strict about my diet, is there any way of keeping the sugar levels down without having to take insulin? Will they return to "normal" levels without medication, or will I still require insulin shots?

**A:** In general, illness and stress do elevate blood sugar, and if you are already requiring insulin when you are otherwise healthy/unstressed, you may need more at these times. If your blood sugars fall into normal levels without needing medications, then triggers such as an illness may or may not raise them, and if so, may not raise them high enough or long enough to warrant medication. Be sure you understand the nature of the disease, and monitor yourself in all situations as closely as you can. No one will be able to manage this better than you.

**Q:** What is a good blood sugar reading after eating a meal?

**A:** In an entire day, we generally say your blood sugar should not go over 140 even after eating a large meal. Ideally it would not go over 120 two hours after eating. With diabetes, one's physician may have a higher goal, depending on the health of the person, in order to avoid hypoglycemia (low blood sugar).

**Q:** Does maintaining a level glucose mean that I should constantly keep my sugars the same, or will the numbers go up and down?

**A:** There are ranges to maintain your glucose within. Ideally, you will target to be under 100 before breakfast (fasting), and under 140 after meals. You are trying to avoid the extremes of high and low blood sugars. Ask your physician what his/her blood sugar goals are for you immediately and over the long term.

**Q:** Does high blood sugar cause your blood to get thick and sticky?

**A:** Very high blood sugars can accelerate dehydration, which could contribute to "thick" blood. Other medications may also lend to dehydration. It takes six molecules of water to move one molecule of sugar through the blood stream. With all the emphasis on food and lifestyle changes, drinking enough water is basic to good management. Generally, 8 glasses per day is a good start for most people, realizing some will need more, some less. If your first morning urine is not reasonably pale, you are probably not getting enough water.

**Q:** Do I need to be concerned that my blood glucose runs about 106 fasting every morning? The rest of the day it is fine. I run and lift weights regularly, and my diet is good while watching my carbs. I do not drink. I am also careful with snacks at night.

**A:** It is good that you are normal during the daytime. The biggest wear and tear on the body seems to come from fluctuating daytime levels rather than a stable but slightly high fasting level. Yes, it would be good to get under 100, ideally between 80-90, but if you truly are most diligent in your lifestyle, you should be able to maintain good health. Certain hormones elevate nighttime levels, contributing to morning highs. Research is out there on many nutraceuticals that may lower fasting blood sugar levels. Water soluble cinnamon in capsule form is one of the most recent that is showing good results.

**Q:** What should my blood sugar be before meals and 90 minutes after a meal to be an acceptable level? I am pre-diabetic.

**A:** In general, you do not want to be over 140 post-meal at any time of day. Staying closer to 120 post-meal is an even tighter goal and mimics the non-diabetic state better. Pre-meal blood sugars will vary depending on the last time food was consumed; a goal is to stay between 80-120. Maintaining consistent exercise and monitoring carbs and food quantity will assist in keeping your 2 hour post meal blood sugars under 140.

**Q:** However, I can have a normal blood sugar reading of about 90 before breakfast and then after a moderate cereal-toast breakfast, my blood sugar will go over 200. I am not diabetic according to medical tests.

**A:** Have you had an Oral Glucose Tolerance Test? Newer research is placing more emphasis on the after meal glucose elevations as opposed to just monitoring fasting glucose. You are experiencing hyperglycemia, which as an initial diagnosis, generally manifests as slowly elevating fasting glucose. Ideally, your fasting glucose should be closer to 80. 100 is pre-diabetes. I would suggest that your breakfasts now consist of more protein and less carbs. Good choices include egg, yogurt, nut butter, cheese, meat, oatmeal, etc. Target for 20-30 grams of protein at each meal. Any carbs you eat should have fiber: whole grain toast, fresh fruit, etc. Breakfast cereals generally don't fit these criteria unless you search for a type with higher fiber. I suggest an overabundance of plant foods now, to clean out your system a bit, giving your liver a work break. This should help to fine tune your metabolism. Make sure you have essential fatty acids in your intake: fish/plant foods are main sources.

**Q:** My husband is on an insulin pump but after a severe low blood sugar, he will struggle for several weeks to get his blood sugars under control again. The blood sugars go low and then high for no reason, regardless of diet, exercise, insulin.

**A:** I suggest you work a bit more closely with the pump trainer on how to cut back on insulin depending on time of day, activity level, etc. With the abilities of today's pumps, there are many options for programming different dosages throughout a 24 hour cycle. In my experience, most pumpers need at least 2-3 different program rates. If you begin to notice a pattern of lows, that would be the time of day or activity relationship to begin cutting back with. This may mean both bolus and basal rates. If lows do occur, try to avoid over treating. Four ounces of juice may be enough if he is really low. Tablets may be a better choice to control the carb amounts, re-administering every 15 minutes until a desired blood sugar level is reached. With perseverance and lifestyle consistency, he should reach a more stable pattern.

**Q: Do cold temperatures affect blood sugar? My blood sugar numbers have gone up since the building turned the air conditioning down. The cold air vent is directly above my desk, blowing cold air directly on me.**

**A:** Extreme temperature changes can create a stress reaction, elevating blood sugars. If you are cold, I'm sure you are "bundling up". Hopefully, you will adjust with time. And is it possible to shift your desk?

**Q: How often should pen needles be used before discarding?**

**A:** Pen needles technically are to be used once. In reality, most people who do more than one injection per day immediately cap their needles after use, discarding at the end of the day. Most pens are prefilled, so when finished, discard and start another pen.

**Q: Why does my blood sugar increase after exercise? I had a blood sugar reading of 135 first thing in the morning but after a 3 mile walk my reading was 155. I had nothing to eat or drink during this time. I repeated this test and got the same results a few days later.**

**A:** Wait an hour after you exercise and see if you get the same results. Exercise is a stressor, so blood sugar will be higher immediately after your session. Also, blood sugars tend to be higher in the mornings because of hormonal activity during the night.

**Q: What is the normal range that your blood sugar should be if you test it at home?**

**A:** For a basically healthy person, a good fasting is under 100, and 80-90 is even better for most people. If you test two hours after a meal, under 120 is ideal. I would suggest, if symptoms persist, that you get some blood work done, perhaps another Oral Glucose Tolerance Test may be indicated. This is also a good time to review your lifestyle habits which are important for keeping a lid on potential blood sugar changes.

**Q: After 8 years of successfully controlling my type 2 diabetes, my fasting numbers are starting to creep up into the 200+ range and my doctor wants to put me on insulin. What am I doing wrong?**

**A:** Many variables can cause this change. One factor is that as we age (I like to refer to this as "chronological maturity"), hormones change as well. Another very common variable is that we often eat the same way, not increasing our intake, but neither do we increase our activity levels. Taking insulin for a time may give the beta cells the rest they need, with perhaps returning to your lower levels. Conversely, many do experience a decline of insulin output over time, regardless of lifestyle management. Your gene pool may have you on this path. Do what you need to to get back into good management. Managing one's stress levels is a "must"; yoga, Tai Chi, dance are just a few examples of very positive supports. Find what works for you.

**Q: My wife is having problems with her blood sugar levels. She has been watching her carbohydrate intake but when she sleeps for at least 8 hours, her sugar levels are higher. Why?**

**A:** It is good she is monitoring her carbs closely, but it is also about the total intake of food and her activity level. Glucose is generally higher in the early morning due to hormonal

activity during the night. If she is also elevated during the day, it again may be the types and quantities of foods. Perhaps her medication needs reevaluating. I would suggest she pose these questions to her physician.

**Q: I have had type 1 diabetes for about 16 years now. My A1C was 8.6 for a while but now I have it down to 7.6 and lower now. The problem is that now I feel like I am having low blood sugar even when I am in the good range.**

A: For many who have adapted to functioning on higher sugars for many years, then in a reasonably short period drop into more normal ranges, low blood sugar symptoms may persist for a time. This means that your insulin is functioning far more efficiently in removing sugar from your bloodstream. At 7.6, you are still in a higher range, but certainly closer to numbers that are more protective for complications. If you are on other medications, particularly for CAD, these may also contribute to symptoms. Make sure you know from your physician what range you should be in. If the symptoms persist, perhaps something else would be the cause not directly related to glucose lowering in the bloodstream. Hormonal changes as part of the life cycle can also play a role.

**Q: Do I use the first or the second drop of blood when testing my blood sugar?**

A: With most strips now, you can touch them with the first drop. It takes far less blood than it used to to get a good sample. One drop is all that is needed.

**Q: I've been taking my blood sugar readings for 2 years. The highest reading was 200 after a meal by 1 hour. Fasting blood sugar is almost between 80 to 100. With such readings, should I be concerned about being diabetic?**

A: You are showing readings of hyperglycemia. There is a greater movement among diabetes management practitioners to emphasize the importance of post meal control. This is because blood sugar excursions contribute to higher oxidative stress, which in turn may cause increased tissue damage leading to greater risk of complications. This seems to be more true than chronic sustained high blood sugars, such as only high fasting levels.

The ideal fasting blood glucose reading is less than 100. The ideal post-meal blood glucose reading is less than 140. 140-200 post meal/random reading is considered pre-diabetes. I suggest you carefully reevaluate your daytime eating, perhaps being more careful of carb intake and type and follow up with your health care practitioner.

**Q: I am a 74 year old male whose glucose level has gone slightly but steadily up over the past year and a half: 99, 104 and today 106. My doctor seems not concerned as I have none of the usual diabetes symptoms, have loads of energy, exercise a great deal at recreational sports, and eat wisely. Given the glucose level and fact that many in my family have diabetes, I am concerned and wonder what I could do?**

A: It sounds like you are on a good path geared towards a healthy lifestyle. You may want to seek professional nutritional counseling to fine tune if you are not already very aware of such issues as the impact of carbohydrates. You are still maintaining a low pre-diabetes status. There are nutritional supplements such as cinnamon that may also be helpful in keeping your

blood sugars down. Be certain too that you stay well hydrated by drinking lots of water. If you maintain these numbers and don't go any higher, you should do well.

**Q: My blood glucose runs about 106 fasting every morning. The rest of the day it is fine. I run and lift weights regularly, and my diet is good while watching my carbs. I do not drink. I am also careful with snacks at night. Is this morning level a reason for concern and why is it high in the morning?**

**A:** It is good that you are normal during the daytime. The biggest wear and tear on the body seems to come from fluctuating daytime levels rather than a stable but slightly high fasting level. Yes, it would be good to get under 100, ideally between 80-90, but if you truly are most diligent in your lifestyle, you should be able to maintain good health. Certain hormones elevate nighttime levels, contributing to morning highs. Research is out there on many nutraceuticals that may lowering fasting blood sugar levels. Cinnulin PF, from cinnamon, is one of the most recent that is showing good results. It can be found in capsule form.

**Q: I have been overweight for years and have been having my blood sugar checked at bi-annual doctor's appointments, always to be told it was "fine" or "normal". Five months ago the A1c was 6.3. Now it has gone to 10.1 with a fasting blood sugar of 329. While at my first diabetic management appointment, the nurse showing me how to test my blood sugar got a 428, stuck a needle of insulin in me, and sent me home with vials and needles. Is it normal for someone to go from fine to insulin diabetic so rapidly?**

**A:** I would hope you had a bit more instruction than what you are conveying. With blood sugars over 300, it is now the thought of many endocrinologists to start a person on insulin to detox the beta cells of the pancreas. This may only be for a short period if lifestyle changes are diligently made. Sometimes, it is a shift to oral medication, or none at all. Over the years, one may need a return to insulin and/or other medications. Take charge of you lifestyle habits and get all the education you can on managing this disease.

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