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Nutrition: Diabetes & Other Blood Sugar Disorders - Part 2

For both high and low blood sugar, there are several lifestyle factors that play an important role. The first is physical activity, and note that I said physical activity, not just exercise. Exercise, of course, is a healthy habit and can help blood sugar regulation, but sitting all day is arguably just as important as a risk factor, even if the patient is getting an appropriate amount of exercise. So let's say you have someone who goes to the gym three or four times a week for an hour, they would meet the government-recommended guidelines for exercise, but if they're sitting and working at a computer, for example, for the rest of the time during the week and not doing anything on the weekend, then they're still going to be at significantly higher risk for metabolic disease. Encourage your patients to stand more often in their everyday lives. This could involve using a standing desk or a treadmill desk at work, sitting on a balance disk or a yoga ball, which requires them to be active, and even though that might not seem like much activity, the micro-movements that happen on a ball or a disk like that can have a significant impact on metabolic expenditure, so that's a good compromise if a standing desk's not possible. It's also important to take at least two-minute standing breaks every 45 minutes, and you can use apps like Workrave on PC and Time Out on Mac to provide reminders for this, and then standing at meetings would be another option.

Patients should also be encouraged to move more throughout the day, so this includes walking but also other activities like household chores or gardening. If the patient works in an office type of environment, they can take walking meetings, use the stairs instead of the elevator, drive part of the way to work, or take public transportation part of the way and then walk the last part. If they park two miles away from work, that can be four miles of walking in a day, or of course if they're able to walk or bicycle all the way to work, that's even better. Getting a dog that has to be walked can kind of force a daily walk, picking up a new hobby, etc., but ultimately they want to aim for around 10,000 steps a day, which can be tracked using a FitBit or other pedometer type of device. That is the range of steps that our ancestors got on a regular basis, somewhere between 8,000 and 15,000 steps a day; 10,000 steps is a good target for most people, although many will have to build up to that if they've been completely sedentary.

For the exercise portion of the activity, because that is still important, patients should use the following recommendations per week: 150 minutes of moderate-intensity activity like jogging, yoga, or dancing, or 75 minutes of vigorous activity like running or Zumba or sports, or 30 sets of very-high-intensity activity like sprinting, jumping rope, or resistance training to failure. The moderate intensity is defined as 50 to 70 percent of maximum effort, vigorous is 70 to 90 percent of max effort, and highest intensity is over 90 percent of max effort, and of course they can do a combination of any of those things, so they could do 50 minutes of moderate-intensity activity and 25 minutes of vigorous activity and 10 to 15 sets of highest-intensity activity. A combination of aerobic and strength training has been shown to be best for blood sugar control versus either alone.

And not surprisingly, sleep is incredibly important for those dealing with metabolic issues. A single night of sleep deprivation has been shown to cause insulin resistance even in healthy individuals, so you may need to work closely with patients to make sure they're getting adequate sleep and are practicing proper sleep hygiene, like avoiding excess exposure to artificial light at night, using blackout curtains in the bedroom, etc., and you'd want your patients to aim for eight hours of sleep per night, so you can refer to the presentation on sleep for more particular tips here.

Stress also induces higher blood sugar levels because an increase in blood sugar is part of the fight-or-flight response that mobilizes us to deal with a stressful event. Glucose is used to produce energy in the body, and during a stressful event, from an evolutionary perspective, the body was expecting to have to fight or flee, and we need energy for that, so if the patient is under severe stress, their blood sugar body will consistently be mobilizing glucose, and that alone can cause high blood sugar, even in the context of a really healthy diet, so they should be encouraged to adopt mind-body activities like meditation, deep breathing, tai chi, qigong, yoga, etc. If they're just starting out, they should introduce these activities slowly, starting small, maybe five minutes a day and increasing over time, but the goal is definitely to get to a daily practice.

Beyond diet and lifestyle, supplementation can also be effective in some cases. Believe it or not, there's not a ton of research supporting many of these nutrients, but there is some, and I've found that some patients respond very well. So chromium picolinate is one that has been shown to regulate blood sugar and insulin levels in some animal and human studies. Diets high in simple sugar, chronic overtraining, and chronic stress can all deplete chromium levels. The dose would be 100 to 300 micrograms per day as chromium chelate, and note that some research suggests that chromium picolinate may cause DNA damage at very high doses, so you wouldn't want to go above the recommended dose, especially not for a long period of time.

Alpha-lipoic acid is a sulfur-containing substance that improves glucose metabolism. It's a powerful antioxidant that can help protect against oxidative stress, which is common in blood sugar disorders. The typical dose for blood sugar disorders is 200 to 400 milligrams per day.

Magnesium optimizes insulin production, improves glucose metabolism, and increases insulin sensitivity. It's commonly efficient, especially in those with metabolic issues. It's one of the nutrients that's most common to be low in Americans, and probably other people in the industrialized world. Studies have shown that magnesium supplementation can improve metabolic health. I recommend a combined intake from food and supplements from 500 to 700 milligrams per day at a minimum for people with blood sugar disorders. Most people get less than 200 milligrams per day from food, so a dose of 300 to 500 milligrams in supplemental form is ideal. I prefer using chelated forms like glycinate or malate, as they're better absorbed and cause fewer side effects than other forms like magnesium oxide.

Gymnema sylvestre is an herb with a long history of use in India for blood sugar disorders. It reduces insulin requirements, decreases fasting blood sugar, and enhances the action of insulin, and may even promote the regeneration of beta cells in the pancreas. The recommended dose is 200 to 400 milligrams per day.

Banaba leaf extract is another botanical that can be helpful with blood sugar issues. It's rich in compounds that have been shown to lower blood sugar, reduce inflammation, and protect against oxidative damage. It's used in traditional medicine in Asia and India to treat diabetes, and the recommended dose is 40 to 60 milligrams per day.

Combination products that contain several of these nutrients are usually the best option, easiest in clinical practice, rather than taking multiple individual supplements, and in my practice, two of the products that I like and recommend are Metabolic Synergy, which has a number of the vitamins and minerals that are helpful for glucose regulation, and then GlucoSupreme, which is a blend of the botanicals that have been shown to be helpful for blood sugar regulation, and these are both from Designs for Health.

Probiotics should also be recommended, because as we've talked about, an unhealthy gut microbiome can contribute to metabolic issues. I think soil-based organisms like Prescript-Assist are usually the best tolerated for the widest range of people, so starting with this is a good option. We cover probiotics in detail elsewhere in the training, so I'm not going to go into a lot of detail here, but just finding a probiotic that works well for the patient and having them take it regularly is important.

Prebiotics may be even more important, though, because they quantitatively increase the levels of beneficial bacteria over time, whereas probiotics don't do that, and they're also fibrous, many of them, and all different types of fiber have been shown to improve blood sugar in studies, and that may be in part because of their beneficial effect upon the gut flora, but it may be via other mechanisms as well. So prebiotics, there are a number of different options, there's soluble fibers, there's resistant starch, there's non-starch polysaccharides, like this product here, which I have in my store, Prebiogen*, it's a combination of various non-starch polysaccharides. These may be difficult, at least at first, for patients with gut issues. They can cause gas and bloating and other digestive symptoms, so you'd want to start at a very small dose, maybe like a quarter or an eighth of a teaspoon if you're using powder form, and build up slowly. The therapeutic dose can be somewhere between five and 10 grams, depending on the fiber that you're talking about, so it may take a while for a patient to get there, because three grams approximately would be a teaspoon, so you're starting at an eighth of a teaspoon, and you want to just build up very slowly, and typically, if you do that, the patient will eventually be able to tolerate, and in some cases, patients have a very hard time tolerating any prebiotics or at least certain types of prebiotics at all, no matter how slowly they build up, so you just have to keep trying different prebiotics until you find the types that the patient can tolerate, because they all feed the beneficial bacteria. Different prebiotics feed different species, but ultimately, you've just got to find the ones that work for your patients.
**Note: Prebiogen is no longer available. As a replacement, consider using BiotaGen from Klaire Labs.*

For those with low blood sugar, in addition to the previously mentioned supplements, you may also want to recommend supplements that help HPA axis function. Low cortisol can trigger or exacerbate low blood sugar, as we discussed, so these supplements can be really helpful in those cases, or in cases where cortisol is dysregulated, produced at the wrong times in the wrong amounts. Stress Manager is a good blend of adaptogens; it can be helpful in these cases, but you'll learn more about supplements for HPA axis dysfunction in the section where we go into a lot of detail on that. Okay, that's it for now. I hope you enjoyed this and will talk to you soon.