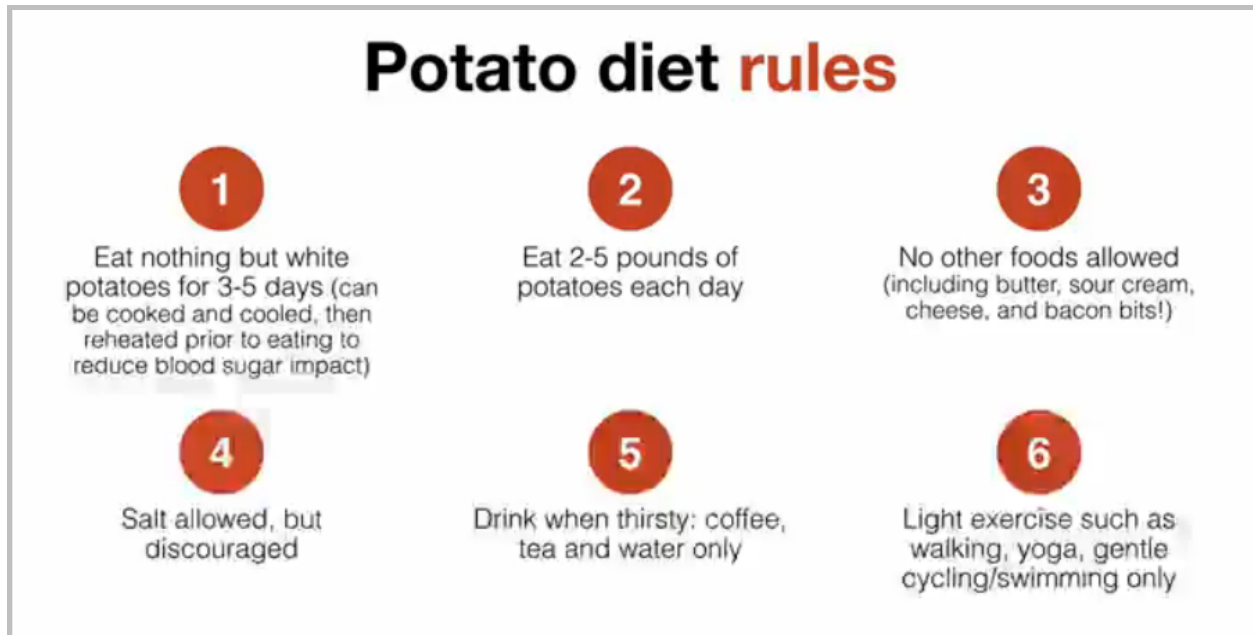


Hyperglycemia II - Part Two

So here are the basic rules of the potato diet, and they're very simple.



Rule number one is eat nothing but white potatoes for three to five days. They can be cooked in advance, cooled, and then reheated prior to eating to reduce their impact on blood sugar. Rule number two is eat two to five pounds of potatoes each day. Rule number three is no other foods are allowed on the potatoes, including butter, sour cream, cheese, bacon bits, oil, etc. Number four, salt is allowed but discouraged, because when salt is added to food, it definitely encourages us to eat more of it. Rule number five is drink when thirsty. Black coffee, tea without milk or coconut oil or anything like that or coconut milk, and water only. Number six, light exercise such as walking, yoga, gentle cycling, and swimming.

If the patient follows these suggestions, he might expect to lose three to five pounds per three- to five-day period. On the other two to four days a week, he would just eat his normal Paleo-type diet. If you're going to do this in a patient with blood sugar issues, I'd suggest that he test his blood sugar with a glucometer after his first few potato meals to make sure that it's not spiking. If it does spike, switch to potatoes that have been cooked and cooled, where resistant starch is formed. If more weight loss is desired after the first week, they would just keep doing it on a weekly basis three to five days per week as desired depending on how quickly they want to move.

There is another variation that most of my patients prefer, which is called potatoes by day, by Tim Steele, and that's following this diet from sun-up to sundown. So, for breakfast and lunch during

the day, they eat as many potatoes, two to five pounds of potatoes, and then they they eat a normal dinner with their family, and that's a little bit easier to follow.

So, how does this work? Well, if you're familiar with some of my other writings and podcasts on weight regulation, you'll know that the brain is the primary regulator of weight in the body. When we eat simple foods that are not rewarding, and I use this term in the psychological context of something is rewarding that makes us want to do more of it, so if you eat foods that are not highly palatable and not highly rewarding, then your intake of calories will spontaneously go down. In other words, you'll eat less without even trying. That's one of the reasons that this works. Another possibility is that potatoes, especially when they're cooked and cooled, are rich in resistant starch, and we know resistant starch feeds the beneficial gut bacteria.

Some contraindications here. People who are sensitive to nightshades obviously wouldn't want to do this. People who experience blood sugar spikes even with cooked and cooled potatoes probably shouldn't do this either, although I've yet to find one of those people. People who in general cannot tolerate much resistant starch because of gastrointestinal issues, although Tim Steele in his book mentions that another use of the potato diet is for people who want to do a GI reset, and he has found that it works very well for that. There is even some information published on his blog showing that three to four days of all-potato dieting dramatically improved his gut microbiota, according to sequential uBiome testing. So, I think it's worth exploring. It can be very effective and has the benefit of being extremely cheap, not a lot of bells and whistles involved, and I'll have a handout for you for your patients in the resources section.

Now, let's talk a little bit about physical activity. I'll be covering this in more detail in the exposome unit, so I'll just give you some highlights here. There are two important goals. The first is increasing nonexercise physical activity, and then the second is getting enough exercise. Both are necessary for controlling blood sugar. Increasing nonexercise physical activity, my suggestion here, which I made in my book, is standing for at least 50 percent of the day and taking about 10,000 steps a day. For exercise, I like a combination of high-intensity interval training and other kind of steady-state activities as desired.

Next is sleep. Several studies have shown that even a single night of poor sleep can impair insulin sensitivity the next day, so if the patient is not sleeping well, he is going to have a hard time controlling his blood sugar. You can refer to the sleep section in the exposome unit for more information about this, but the basics, of course, are to get at least seven to eight hours of sleep a night, use proper sleep hygiene, and control exposure to light at night and during the day.

The next thing would be to assess and treat HPA axis dysfunction and prescribe stress management for your patients. Remember, cortisol is a glucocorticoid, so chronic stress activates fight or flight, and it mobilizes glucose to provide energy to deal with the threat. If this happens chronically, it can lead to hyperglycemia. Do the DUTCH testing, treat any issues that you identify, and get the patient on a regular stress management program. It's very important for blood sugar control.

Next would be to assess nutrient status and to correct any imbalances that you find. There are several nutrients associated with hyperglycemia. These include low vitamin D, low magnesium, both low and high levels of iron, low choline, and low chromium. Some of these we test routinely, such as vitamin D, magnesium, and iron. Others, such as choline and chromium, we typically try to focus on in the diet or even supplement with empirically.

Next would be to assess and correct gut pathologies. There is a large and growing body of evidence connecting the health of the microbiome in the gut in general to metabolic function. Restoring proper gut ecology is an important part of treating blood sugar disorders.



Diet, physical activity, sleep, HPA axis and stress management, nutrient balance, and gut are the five pillars of blood sugar regulation. In the majority of cases where hyperglycemia is mild, for example, they are functionally high or in the prediabetes stage, these changes will be enough to reverse the problem. However, in full-fledged type 2 diabetes or type 1.5 diabetes, which is autoimmune in origin, where there is a significant loss of glucose control, the patient may need further intervention, so here is where we can think about supplements, botanicals, and in some cases medication in order to get the blood sugar levels back into the target range. It's really important to do that because high blood sugar is associated with so many different diseases, increases the risk of so many conditions, and it increases the risk of total mortality.

Nutrients for blood sugar regulation

Nutrient	Dose
Chromium	100-300 mcg/d
Alpha-lipoic acid	200-400 mg/d
Magnesium	300-500 mg/d
Biotin	200-500 mcg/d
Green tea extract	200-300 mcg/d

Several nutrients have been shown to help regulate blood sugar levels. Chromium regulates blood sugar and insulin levels in some animal and human studies. Diets high in simple sugar such as the Standard American Diet, chronic infections, overtraining, and chronic stress can all deplete chromium. I suggest a dose of approximately 100 to 300 mcg per day as chromium chelate. Note that some research suggests that chromium picolinate, which is a popular form of chromium, may cause DNA damage at high doses, so I think that is best avoided.

Alpha-lipoic acid is a sulfur-containing substance that improves glucose metabolism. It's also a powerful antioxidant that can help protect against oxidative stress, which is common in blood sugar-related conditions. I recommend a dose of 200 to 400 mg per day. There was some recent research suggesting that long-term intake of alpha-lipoic acid at higher doses may be problematic, so with all of these nutrients and supplementation in general, for therapeutic purposes, we want to try to get the patient off as soon as we're able to do that.

Magnesium optimizes insulin production, improves glucose metabolism, and increases insulin sensitivity. Magnesium deficiency is common in people with metabolic problems, and clinical trials have shown that magnesium supplementation can improve metabolic health. The suggested dose is 300 to 500 mg per day.

Biotin increases insulin sensitivity. It lowers post-meal blood sugar and enhances the function of certain enzymes that help the body to process glucose effectively. Suggested dose of biotin is 200 to 500 mcg per day.

A side note about biotin is that very high doses of biotin, such as 5 to 10 mg per day, which a lot of patients take for improving their hair, skin, or nails, have been shown to interfere with a wide range of serum blood tests because biotin is part of the lab assay in many cases and reacts with the particular marker that is being tested, so you can get false-positives for things such as PSA antigen, for thyroid antibodies, and other issues. There was a recent article that suggested that some people are being treated for conditions that they don't actually have because they are taking very high doses of biotin. It's not that the high dose of biotin itself is dangerous, but you need to be aware if your patient is taking a high dose of biotin that it could really interfere with lab testing results.

Green tea has long been considered a health-promoting beverage, and modern science has confirmed that benefit. Studies have shown that EGCG, which is a compound found in green tea, reduces fasting blood sugar and insulin levels, increases insulin sensitivity, and protects against oxidative damage. The suggested dose there is 200 to 300 mcg per day.



Recommended Use: As a dietary supplement, take six capsules per day, two with each meal, or as directed by your health care practitioner.

Supplement Facts

Serving Size 6 capsules
Servings Per Container 60

Amount Per Serving	% Daily Value	Amount Per Serving	% Daily Value
Vitamin A (as Palmitate and Mixed Carotenoids from Palm Tree Fruit)	3000 IU 60%	Selenium (as Selenium Glycinate Complex)	200 mcg 290%
Vitamin C (as Ascorbic Acid)	500 mg 830%	Manganese (TRAACS® Manganese Glycinate Chelate)	3 mg 150%
Vitamin D (as Cholecalciferol)	400 IU 100%	Chromium (TRAACS® Chromium Microcapsule Glycinate Chelate)	500 mcg 420%
Vitamin E (as d-alpha-tocopherol)	25 IU 80%	Molybdenum (TRAACS® Molybdenum Glycinate Chelate)	100 mcg 130%
Thiamin (Vitamin B-1) (as Thiamine HCl and Benfotiamine)	75 mg 5000%	Potassium (as Potassium Glycinate Complex)	300 mg 6%
Riboflavin (Vitamin B-2)	25 mg 1470%	Alpha Lipoic Acid	600 mg *
Niacin (Vitamin B-3) (as Nicotinamide)	50 mg 250%	Taurine	600 mg *
Vitamin B-6 (as Pyridoxine HCl and Pyridoxal 5-Phosphate)	50 mg 2500%	Inositol	500 mg *
Folate (Methylfolate® blend)	400 mcg 100%	Green Tea Extract (Camellia sinensis/leaves) (standardized to contain 99% polyphenols and 45% EGCG)	200 mg *
Vitamin B-12 (as Methylcobalamin)	1000 mcg 16670%	Carnitine	200 mg *
Biotin (as d-Biotin)	4000 mcg 1330%	High Gamma Amino Acids (as d-gamma, d-delta, d-alpha, d-beta)	165 mg *
Pantothenic Acid (as Calcium Pantothenate)	50 mg 500%	Vanadium (TRAACS® Vanadium Nitrate Glycinate Chelate)	200 mcg *
Inositol (as Potassium Inositol)	75 mcg 50%		
Magnesium (as DL-Magnesium Malate)	100 mg 25%		
Zinc (TRAACS® Zinc Glycinate Chelate)	30 mg 200%		

*Daily Value not established.

Other Ingredients: Microcrystalline cellulose, silicon dioxide, vegetable stearate.

I've obtained the best results with a formula that contains several of the nutrients that I just mentioned. At the time of this recording, my preferred product is Metabolic Synergy from Designs for Health. It contains chromium, alpha-lipoic acid, taurine, green tea extract, manganese, magnesium, potassium, vanadium, and other nutrients that can be helpful in regulating blood sugar. The suggested dose is two capsules three times a day or three capsules two times a day. I've seen really good results with this product. It can help reduce blood sugar and manage cravings and symptoms that are related to fluctuating blood sugar. If your patient is taking a multivitamin for any other purpose, and you prescribe this, it will likely replace that in many cases depending on what nutrients they were targeting, so as you can see, it does have a lot of vitamins and minerals, so you want to pay attention to that.