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These Two Natural Foods Will Throw Your Blood Sugar Out-of-Whack

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By Dr. Mercola

On his website "Livin' La Vida Low Carb," Jimmy Moore examines the notion of "safe starches," a concept promoted by Paul Jaminet, PhD. in his book, *Perfect Health Diet*.

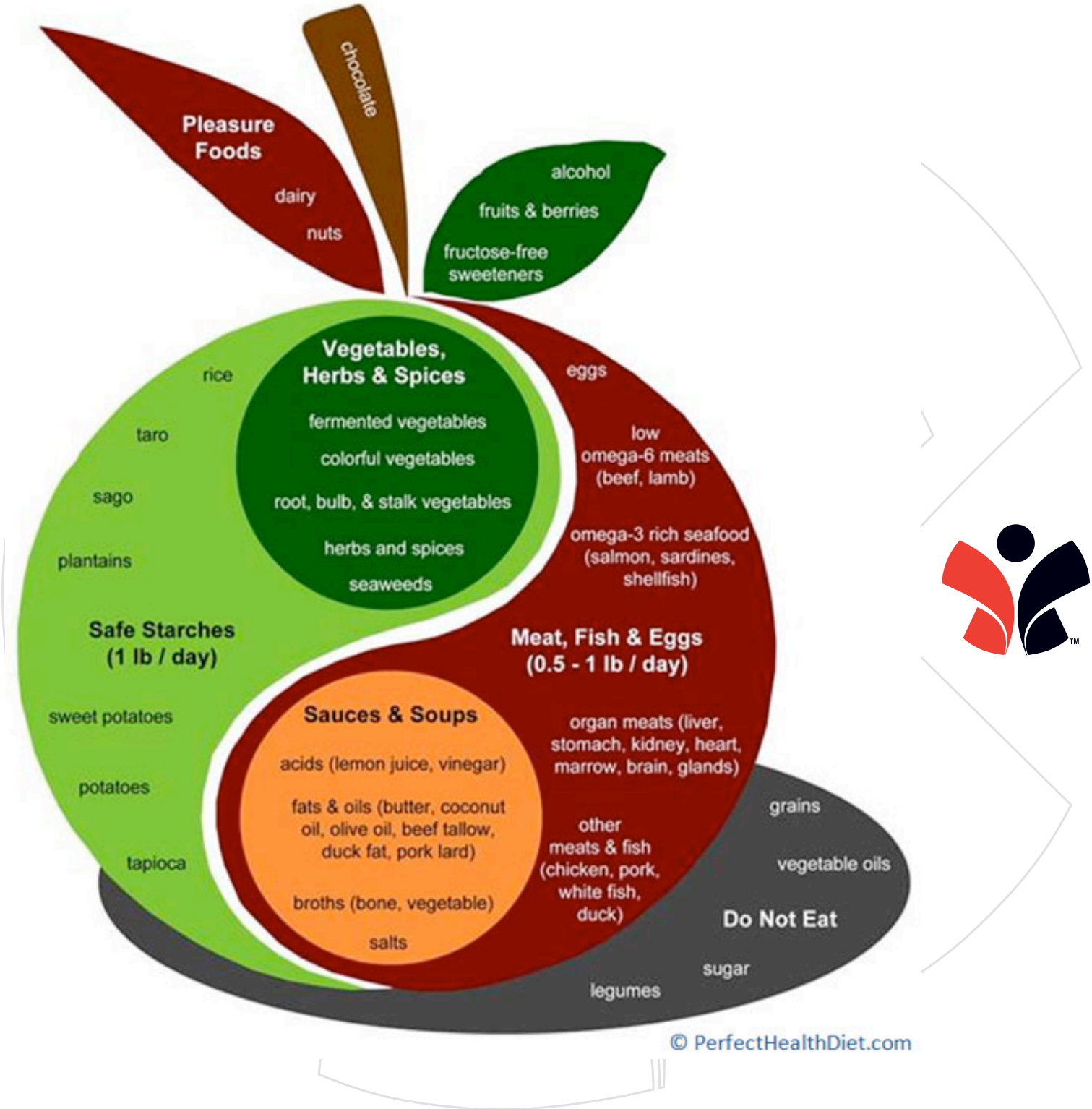
Dr. Jaminet claims that those on low-carb diets who add "safe starches" such as white rice and potato back into their diet will usually improve their health and improve insulin sensitivity.

I had a chance to listen to Dr. Jaminet at the Dallas Weston A. Price Conference and was impressed with his ability to consolidate research information.

He is a Ph.D. researcher, an astrophysicist, and his wife Shou-Ching is a Harvard biomedical scientist who does not personally treat patients.

I spoke with Dr. Jaminet briefly after his presentation and he agreed to be interviewed soon. From all his research he developed a very nice graphic that I believe many would find useful.

As you can see he suggests eliminating all grains and legumes.



This is a fairly radical approach that most people are not applying.

Dr. Rosedale's approach is even more carb restrictive.

You can read Dr. Jaminet's response to Dr. Rosedale here, and his earlier statement to which Dr Rosedale was replying here. It is really unusual to have two such prominent experts carry on a civil and erudite discussion on such an important topic. If you have the time and interest I would strongly recommend that you read their detailed debate.

Dr Jaminet uses the term "safe starch" to refer to starchy foods that lack protein toxins, regardless of their starch content. UK-based senior nutritionist Emily Maguire argues that terming any starch foods as "safe" could also result in a very misleading impression.

She especially questions potatoes and white rice being included as "safe" foods in any form of low carb recommendation, as their high glycemic index shows that these foods cause the *greatest* spike in blood sugar levels.

Dr. Ron Rosedale is a physician who first educated me about the importance of insulin. He has used low-carb diets to treat his patients with obesity, diabetes and chronic diseases for over two decades. He was even invited by prominent groups in India to help them with their health challenges, as they have some of the highest rates of diabetes in the world. He further argues that there is no such thing as a "safe" non-fiber starch (such as rice or potatoes).

You can read Dr. Rosedale's entire long detailed letter at Jimmy Moore's site.
Please note it is about 20 percent down this very long page.

According to Dr. Rosedale:

> *"Eating starch will raise blood sugar to some extent in all living beings that do so, and that will cause some degree of harm in everybody. Therefore, the term 'safe starch' is an oxymoron. 'Tolerably harmful'? Perhaps for some".*

Do You Really Need Starches?

Moore's article does include a well-written personal account of a Paleo Diet enthusiast who claims adding potatoes and rice back into her diet in moderate amounts corrected recurring anxiety attacks that developed after about five months on a strict low-carb diet. In her words:

> *"I saw a holistic nutritionist. I had tests run in which he could tell how my digestion was doing (urine and saliva testing). Lo and behold, I was digesting fats and carbs well, but my protein digestion was not good…*
>
> *When I told him that I was waking up most nights around 3 or 4 in the morning with racing heart, he said he believed that I was waking up because my liver was trying to do its thing at this time, but was running out of glucose, giving me low blood sugar. In response to low blood sugar, the adrenals release adrenaline, which was causing the rapid heartbeat and eventually woke me from sleep..."*

Once she added in one to two 3oz servings of starch in the form of potatoes or rice daily, the anxiety symptoms disappeared. It's hard to argue with such personal experiences.

Dr. Jaminet offers on the "Results" page of his web site, PerfectHealthDiet.com, other accounts from low-carb dieters who benefited from adding starches back to their diets.

But some nutrition experts with a long history of treating patients with diet, such as Dr. Rosedale, disagree with the premise that these so-called "safe starches" are beneficial in the long term for most people. He maintains that those who do suboptimally on a low carbohydrate diet do so as a result of substituting high protein for the carbohydrates, and Rosedale is adamantly against this. The majority of people who reduce carbohydrates raise protein due to the fat phobia perpetuated by the medical establishment for the last half-century. The Rosedale diet is higher in fats and oils and maintains a protein intake that is not higher than necessary.

One of the risks of promoting the idea of "safe starches" is that it grants "permission" to consume them, when *most* people probably shouldn't. Dr. Rosedale points out that while glucose is certainly not toxic in and of itself, foods that raise your blood sugar levels essentially are "toxic" in that they set in motion a cascade of detrimental health effects. The same can be said for fructose. It's not a toxin in and of itself, but when consumed in excess (anything above 15-25 grams/day for most people), its effects are toxic to your system and will surely have a negative impact on your health.

Now, we do have to remember that discussions such as these are aimed at the *majority* of people. While I have the enormous respect for Dr. Rosedale's genius in this area and deeply appreciate his first teaching me about the importance of insulin and leptin, he leaves little room for biochemical individuality. I suspect many if not most would do very well with his recommendations, but some may not. That said, I would caution you to be very careful about ignoring them.

The sheer fact that two-thirds of American adults are overweight or obese, and one-in-four American adults have diabetes or pre-diabetes tells us that the majority, probably well over two-thirds of the U.S. adult population, needs to be *very* careful about eating foods that will raise their insulin levels—as starches like potatoes and rice certainly will.

If you haven't achieved the health outcomes you are seeking, it would seem reasonable to apply the rigid carb restrictions that Dr. Rosedale advises and see if it helps.

Why there's No Such Thing as a "Safe Starch"

In many ways this is an advanced topic and for the majority of people going into areas that they will likely never explore. It really is for those seeking to achieve exceptional high levels of health, not for the over two thirds of the population that are overweight.

Dr. Rosedale offers a large volume of data to support his stance against starches in the featured article, and I highly recommend taking the time to read through it all, plus Dr. Jaminet's reply. Here I will summarize a few of the key points Dr. Rosedale presents in opposition to the "safe starch" concept.

Dr. Jaminet had previously boiled down the debate into two key points:

1. On low-carb diets, is it better to eat 100 grams (= 400 calories) of carbs per day, as *Perfect Health Diet* argues, or some lower number of carb

2. Are "safe starches" the best source of carb calories?

I keep very careful track of my diet with one of the best diet apps on the iPad (in my opinion) called Calorie Counter and Fitness Tracker. My guess is most people are not keeping such detailed records of what they eat. I typically have about 60-70% of my diet as healthy fat and only consume about 100 grams of carbohydrates a day or less than 20% of my total calories. This amount is in line with Perfect Health Diet recommendations, but in my diet, most of the non-fiber carbohydrates are veggies. Only a few meals a week will include some grains as they are a real treat.

Dr. Rosedale is adamant that there simply is no such thing as a safe non-fiber starch. Why? Because consuming starches, especially potatoes and rice, will raise your blood sugar to some extent, which ultimately means that it will be detrimental to some degree in everybody.
My guess is that from a biochemical perspective he is probably right.

This is because when you raise glucose levels, you raise your insulin levels, which in turn increases insulin resistance—and insulin resistance is at the root of virtually all chronic disease, and speeds up the aging process itself. Dr. Rosedale also points out that contrary to Jaminet's speculation, there is a threshold for blood glucose that predicates whether the carbs you eat will be beneficial or detrimental, such a threshold does not exist.
In his words:

*"Very simply, the **higher the blood sugar rise, the more damage is done** in some linear upward slope. This seems to be quite clear, and should put the issue to rest."* [Emphasis mine]

Since there is no threshold for blood glucose below which it will not do some level of harm (as it's simply a sliding scale of harm), Dr. Rosedale states that the question of whether or not "safe starches" are the "best" types of carbs becomes moot.

Sugar is Not an Essential Nutrient

Most of you probably know that your body does need, and uses, glucose for energy. Without it you wouldn't survive. Here, it's important to understand that the debate is about whether or not

you need to supply your body with sugar *from your diet*, or whether *gluconeogenesis* (the metabolic pathway that generates glucose from non-carbohydrate substrates) is the ideal mechanism.

Dr. Rosedale dispels the notion that sugar is a necessary dietary component (barring a hypoglycemic crisis).

According to Dr. Rosedale:

> *"There is no known need to eat sugar or starches. If there were, it would be an essential nutrient, which glucose is not. It is not listed on any list of essential (or even conditionally essential) nutrients (that we must obtain [from our diet] because we cannot make them sufficiently ourselves), that I'm aware of.*
>
> *Whether or not "glucose deficiency symptoms" exist, they would not be due to a lack of glucose."*
>
> *… [Jaminet] is correct to refer to so-called "glucose deficiency" as a symptom. However, it is not symptoms that we must treat. As much as possible we need to get down to the underlying disease. Even if the symptom had to do with glucose, the disease would not be due to a lack of glucose but rather to wrong instructions about what to do with it. Just consuming more of a nutrient or building block without the body properly knowing what to do with it is likely to cause more harm than good. Osteoporosis, for instance, at least in this country, is rarely due to a lack of calcium.*
>
> *There is a strong positive correlation between those with osteoporosis and those with coronary calcifications. The calcium is there, it's just in the wrong places.*
>
> *… A disease is never a disease of the individual part. Diabetes is not a disease of blood sugar, osteoporosis is not a disease of calcium and heart disease is NOT a disease of cholesterol. A disease is caused not by the breakdown of the part itself, but corruption in the instructions to that part, a disruption in the unity of the whole."*

Why You Don't NEED Sugar in Your Diet

When you "starve" your body of sugars and starchy carbs, your body starts to acclimatize itself to burn fatty acids and ketones (also known as ketoacids, or ketone bodies). Ketones are what your body produces when it converts *fat* (as opposed to glucose) into energy.

As an example, let's look at your brain. One of the primary fuels your brain needs is glucose, which is converted into energy. But does that mean you need *dietary sugar?*

The mechanism for glucose uptake in your brain has only recently begun to be studied, and what has been learned is that your brain actually manufactures its own insulin to convert glucose in your blood stream into the food it needs to survive. When your brain becomes insulin resistant—meaning, when its response to insulin is weakened to the point that it stops producing the insulin necessary to regulate blood sugar—it begins to starve and atrophy, causing many of the symptoms of Alzheimer's.

Fortunately, your brain is able to run on more than one type of energy supply, namely ketones. Ketone bodies may even be able to *restore and renew* neuron and nerve function in your brain after damage has set in, as Dr. Mary Newport's research on coconut oil as a treatment for Alzheimer's suggests (coconut oil naturally contains 66 percent medium chain triglycerides, which are a primary source of ketones).

So, even when it comes to something as essential as providing fuel for your brain, there's actually little or no evidence that consuming sugars is necessary, as long as you provide it with the proper—or likely preferential—fuel, which is healthy *fat*.

While Dr Jaminet recommends consuming 400 calories, or about 100 grams of mostly fiber-based carbs a day to avoid what he refers to as "glucose deficiency symptoms," Dr. Rosedale counters these claims with research from the likes of George Cahill, by many considered one of the world's experts in the metabolism of starvation.

Dr. Rosedale writes:

> *"It takes at least several weeks to fully adapt to extremely low sugar intake, such that the body can effectively burn fatty acids and ketones… Let's see what George Cahill has to say about glucose needs in a person well adapted to no carbohydrate intake… [Cahill] recently wrote a paper summarizing many of his long professional career's findings. They are the following:*
>
> *"Total splanchnic glucose production [to fulfill body needs] in several weeks' starvation amounts to approximately 80 grams daily. About 10–11 grams/day come from glucose synthesis from ketone bodies, 35–40 grams from recycled lactate and pyruvate, 20 grams from fat-derived glycerol, and the remaining 15–20 grams from protein-derived amino acids, mainly alanine."*
>
> *"… An approximation for clinical use is that* ***if a diet contains over 100 grams carbohydrate, there is no ketosis*** *(<0.1 mM). As one decreases dietary carbohydrate, ketogenesis begins...Glucose administration to fasting normals reverses starvation metabolism rapidly..."* [Emphasis mine.]

Therefore, Dr. Rosedale summarizes:

> *"[U]nder a fully adapted, zero carbohydrate milieu, one only needs approximately **80 g (~320 cal) of glucose daily, the vast majority of which could be derived from fat and non protein sources**. Only 15 to 20g need come from proteins, and likely less if one was actually eating fat that would allow for greater glycerol production and protein sparing."* [Emphasis mine.]

In Dr Jaminet's reply to Dr Rosedale, he argues that although people can survive on zero glucose consumption due to ketone generation, this is not optimal. For "perfect health," one should provide the body with some dietary glucose. Dr. Jaminet acknowledges that some level of ketosis is desirable, but this can be achieved even with consumption of 100 grams carbohydrate daily if coconut oil is consumed, or transiently during the latter parts of the overnight fast.

Calorie Restriction for Longevity

As Dr. Rosedale mentions, calorie restrictions has repeatedly been shown to be one of the most effective strategies for reversing disease and extending lifespan.

First, sugar (whether it's glucose or any other sugar) glycates, and glycation is one of the most devastating molecular mechanisms there is. Glycation is in large part responsible for the signs of aging. Second, ketosis, which is needed for gluconeogenesis (creation of glucose), will not occur if you consume more than about 100 grams of carbohydrates a day, according to Cahill's research.

So the KEY to calorie restriction is understanding *which* calories to restrict!

Specifically, calories from carbs are the ones that need to go first, and need to be restricted the most severely.

The detrimental impact of sugar applies to everyone, without exception, *to some degree*. So while the health effects may be less noticeable in some than in others, it's simply a matter of scale. Then, it's a matter of *time* until your particular body "gives up" after having compensated and adjusted to the insult over a period of time. In this case, once your body loses its ability to compensate for the continuous influx of daily glucose consumption by spiking insulin and leptin (even if it's moderate; remember it's like a sliding scale of harm that is dose-dependent), you eventually develop insulin and leptin resistance.

Dr. Rosedale includes a number of relevant studies showing the harmful effects of carbohydrates. For all of them, please see the original article. Here are just a few:

- PLoS Genetics 2009: "[E]xcess of glucose has been associated with several diseases, including diabetes and the less understood process of aging. On the contrary, limiting glucose (i.e., calorie restriction) slows aging and age-related diseases in most species… The pro-aging effect of glucose signaling on life span correlated with an increase in reactive oxygen species and a decrease in oxidative stress resistance and respiration

rate. Likewise, the anti-aging effect of both calorie restriction and the Dgit3 mutation was accompanied by increased respiration and lower reactive oxygen species production."

- The Journal of Clinical Endocrinology & Metabolism 2000: "Blood samples were drawn from 14 normal subjects prior to, at 1, 2 and 3 hours following ingestion of 75 g glucose…We conclude that glucose intake…increases oxidative load [in leukocytes] and causes a fall in a-tocopherol concentration."

Dr. Jaminet argues in response that while moderate carbohydrate restriction is good – thus his advocacy of a low-carb diet – too much carbohydrate restriction can be harmful. In particular, when carbs are scarce body temperature is lowered to conserve glucose, and low body temperature increases risk of infections which might shorten lifespan

Starches Raise Glucose which Contributes to Chronic Disease

So, to sum it up in the fewest number of words possible, know that:

Raising blood glucose raises insulin, which increases insulin and leptin resistance.

And avoiding insulin and leptin resistance is perhaps the single most important factors if you seek optimal health and longevity. Therefore, consuming more than about 80 grams of carbs per day, based on the research, cannot be recommended.

That said, are potatoes and rice, *specifically*, a more healthful choice than, say, bread or pasta?

No. As explained by Dr. Rosedale, these foods, or any other type of non-fiber starch, will result in the following adverse consequences, regardless of your current state of health:

1. They will quickly be converted into glucose, which will raise your blood glucose

2. As your blood glucose rises, your insulin- and leptin levels rise in response. While this mechanism is designed to optimize short-term survival, it's not healthy for a long, post-reproductive lifespan. The immediate effects of spiking your insulin levels are now well known and include vasoconstriction, inhibited fat burning, and reduced production of glycerol substrates to make glucose, just to name a few. For more information, please read Dr. Rosedale's article, Insulin and its Metabolic Effects

3. Repeated elevations of insulin and leptin eventually lead to insulin- and leptin resistance, which are hallmarks of poor health

However Dr. Jaminet would counter that if you are going to include the carbs mentioned above, rice would be far superior to wheat due to the lectins, gluten and other items in wheat that

serve as anti-nutrients and toxins, and that sweet potatoes would be far better than white sugary (fructose-rich) carb sources like white potatoes.

Bottom Line

If you are looking for a new and solid eating plan based on solid science I would strongly recommend Dr. Jaminet's book *Perfect Health Diet*. Your goal will be 50-70% of your diet as healthy fat which will radically reduce your carbohydrate intake. Most people will likely notice massive improvement in their health by following this approach as they are consuming FAR more grain and bean carbohydrates in their diet.

One of Dr. Jaminet's final conclusions is

> ***"A 20% carb diet**, while not optimal for every single person, **is healthy for nearly everyone**. Twenty percent may be the best single prediction of the optimal carb intake for the population as a whole."*

If you are already healthy and seeking to take it to the next level and are willing to experiment then give Dr. Rosedale's suggestions a try and eliminate nearly all non-fiber carbs. They will be very challenging to implement but may provide outstanding results. More information from Dr. Rosedale can be found here.

Whatever diet choices you make please remember ALWAYS listen to your body as it will give you feedback if what you are doing is right for your unique biochemistry and genetics. Listen to that feedback and adjust your program accordingly.