

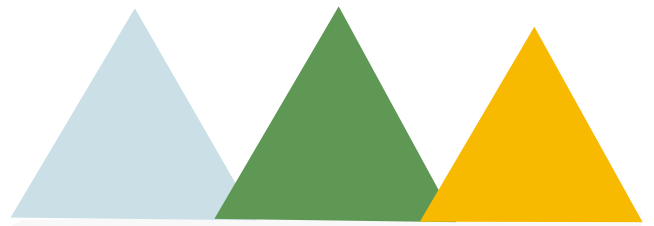
# WHITE POTATOES



*Are White Potatoes Paleo?  
Consideration and Deliberation for  
White Potatoes in Certified Paleo  
Standards*

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## STATEMENT OF PURPOSE



In loose terms, the Paleo Diet is a diet based on the types of foods presumed to have been eaten by early humans before the advent of agriculture. These foods included meat and seafood, nuts and seeds, roots and tubers, and fruits and berries. The diet of our ancient Paleolithic ancestors presumably excluded dairy, grains, and highly refined foods.

Unfortunately, the food landscape has changed significantly in the past 10,000 years, which makes defining items that fall into 21st century Paleo Diet a bit... tricky. Because the diet is theoretical in nature and up for wide interpretation, no single unified 'Paleo Diet' definition exists, and disagreements over specific food items and processing among the Paleo Community is common.

The purpose of the Consensus Reports for Paleo products is to offer producers and Paleo Community members alike a more transparent view of The Paleo Foundation standards and procedures of deliberation.



*Karen Pendergrass*

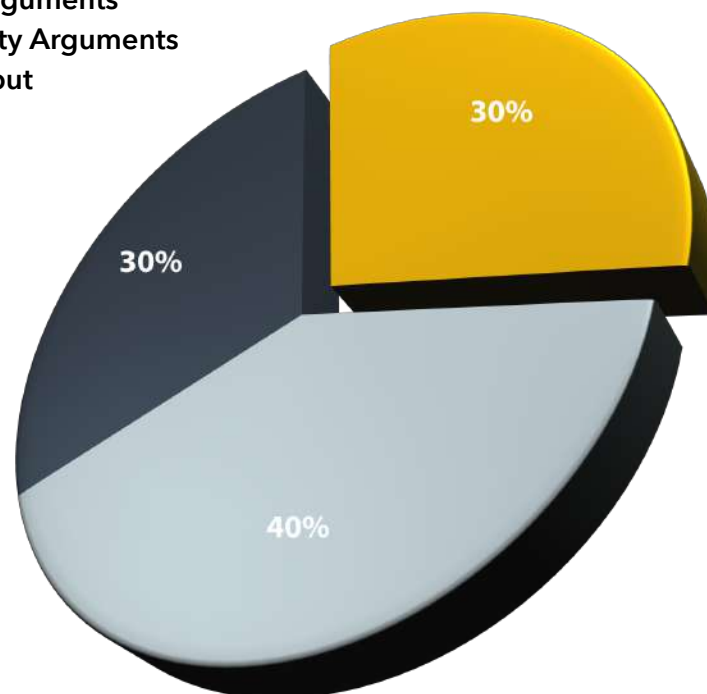
Karen Pendergrass  
Paleo Foundation  
CEO

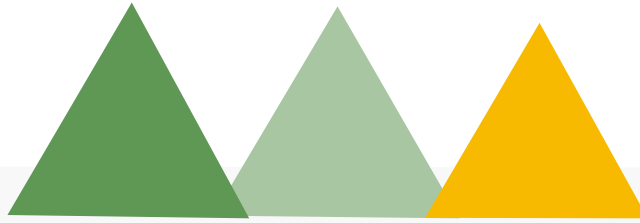
## WEIGHTED INPUTS

The Paleo Foundation Consensus Reports provide a comprehensive look at how arguments made by the Paleo and Keto communities, leading experts, and the Paleo Foundation are weighted in creating the standards for the Certified Paleo and Keto Certified programs for food products, highlighting The Paleo Foundation deliberation process.

Our aim with the Paleo Consensus Report is to provide a comprehensive look at various arguments made by the Paleo Community, and to offer a definitive guide and current **Official Paleo Status** for foods and ingredients. We do so by taking several factors into account, including current research, archaeological records, paleogenetics, sustainability concerns, proposed health benefits, and input from various leading health experts of the Paleo Movement. The Paleo Foundation Consensus Reports serve as definitive, comprehensive, and current guides for foods and food ingredients.

- Logical Arguments
- Community Arguments
- Expert Input





# THE EXPERTS



Chris Kresser M.S., L.Ac  
Medicine For the 21st  
Century



Dr. Stephan Guyenet  
Obesity Researcher,  
Neurobiologist



Robb Wolf  
Research Biochemist,  
Author of The Paleo  
Solution



Mark Sisson  
Triathlete,  
Author of the Primal  
Blueprint



Dr. Sarah Ballantyne  
Author of The Paleo  
Approach



Alan Aragon M.S.  
Nutrition Researcher  
and Educator



Diana Rogers, RD  
Author of Sustainable  
Dish

# Are White Potatoes Paleo?

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## Community Arguments

- 1) White Potatoes weren't eaten until the Agricultural Revolution.
- 2) White potatoes aren't paleo because they have a high glycemic index.
- 3) White Potatoes aren't Paleo because they contain glycoalkaloids.
- 4) White Potatoes aren't paleo because they are consumed in highly processed forms like french fries and potato chips.
- 5) White Potatoes aren't Paleo because they are Nightshades.
- 6) White Potatoes aren't Paleo because [a Paleo Expert] said they weren't.
- 7) White Potatoes aren't Paleo because they are a high-carbohydrate food.

### KEYWORDS

Paleolithic Diet, Carbohydrates, Glycemic Index (GI), Fallacy of Division, Ethnocentrism, Appeal to Authority

## 1 | BACKGROUND

Since the Paleo Diet [Appendix] was first popularized, the inclusion of potatoes in the diet has been perhaps the biggest source of controversy within the Paleo community.

The majority of Paleo community members ( an estimated 72%) believe that potatoes —including white potatoes — are a Paleo food item. However, an estimated 27% of the Paleo community do not believe that potatoes are a Paleo food item, while roughly 7% are unsure [Figure 1].

However, as a certification organization, The Paleo Foundation is tasked with making community-wide decisions regarding Paleo food items and must consider controversial ingredients, such as the potato, carefully. In this Consensus Report, we will critically examine arguments from the Paleo community on the topic of

white potatoes and offer additional input from leading Paleo experts. In the conclusions of this report, we will offer our decision to include or exclude white potatoes in the Certified Paleo Standards.

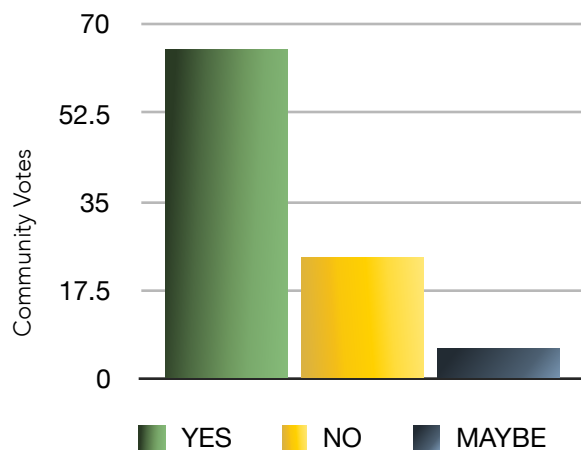


Figure 1. "Are Potatoes Paleo?" Poll conducted in the International Paleo Movement Group (IPMG) September, 2016 [1].

## 2 | THE POTATO

- **Biological Facts**

**Botanical Family.** Potatoes (*Solanum tuberosum*) are in the Solanaceae family, related to tomatoes, peppers, and eggplant.

**Tubers.** The part of the potato plant we eat is called the tuber, which is actually an enlarged underground stem. Each plant will produce multiple tubers. Potato tubers come in a variety of colors, but most common are red and white. Their shape can be round, oblong, flattened, or elongated.

**Biodiversity.** There are about 4,000 known varieties of potatoes with about 3,000 existing in the South American Andes region alone where they originated, and can drastically differ in type, size, shape, color, and even starch content [2].

- **Nutritional Facts**

“I think one of the biggest misperceptions about potatoes is that they’re just a “carb bomb with no nutritional value” but the nutritional data suggests otherwise.” - Diana Rogers (Karen Pendergrass, personal communication, September 13, 2016

A large white potato (3" - 4 " in diameter) (299g) has 281 calories, contains 64.1 grams of carbohydrate, 7.9 grams of protein, 6.9 grams of dietary fiber, and .4 grams of protein [3].

While the macronutrient profile of a potato is roughly 88% carbohydrate, 10% protein, 10% dietary fiber and 0.5% fat, nutritional data suggests that the white potato is also a very good source of essential vitamins such as vitamin C, niacin, vitamin B6, folate, and pantothenic acid, and minerals like magnesium, phosphorus, potassium, copper, and manganese [4] [ **Figure 2, 3** ]

### A.

#### Vitamins

Amounts Per Selected Serving		%DV
Vitamin A	29.9 IU	1%
Retinol	0.0 mcg	
Retinol Activity Equivalent	3.0 mcg	
Alpha Carotene	0.0 mcg	
Beta Carotene	17.9 mcg	
Beta Cryptoxanthin	0.0 mcg	
Lycopene	0.0 mcg	
Lutein+Zeaxanthin	89.7 mcg	
Vitamin C	37.7 mg	63%
Vitamin D	~	~
Vitamin E (Alpha Tocopherol)	0.1 mg	1%
Beta Tocopherol	0.0 mg	
Gamma Tocopherol	0.0 mg	
Delta Tocopherol	0.0 mg	
Vitamin K	8.1 mcg	10%
Thiamin	0.1 mg	10%
Riboflavin	0.1 mg	8%
Niacin	4.6 mg	23%
Vitamin B6	0.6 mg	32%
Folate	114 mcg	28%
Food Folate	114 mcg	
Folic Acid	0.0 mcg	
Dietary Folate Equivalents	114 mcg	
Vitamin B12	0.0 mcg	0%
Pantothenic Acid	1.1 mg	11%
Choline	43.1 mg	
Betaine	0.6 mg	

### B.

#### Minerals

Amounts Per Selected Serving		%DV
Calcium	29.9 mg	3%
Iron	1.9 mg	11%
Magnesium	80.7 mg	20%
Phosphorus	224 mg	22%
Potassium	1626 mg	46%
Sodium	20.9 mg	1%
Zinc	1.0 mg	7%
Copper	0.4 mg	19%
Manganese	0.6 mg	28%
Selenium	1.5 mcg	2%

**Figure 2.** A. Vitamins in a white potato. B. Minerals present in a white potato. [4].

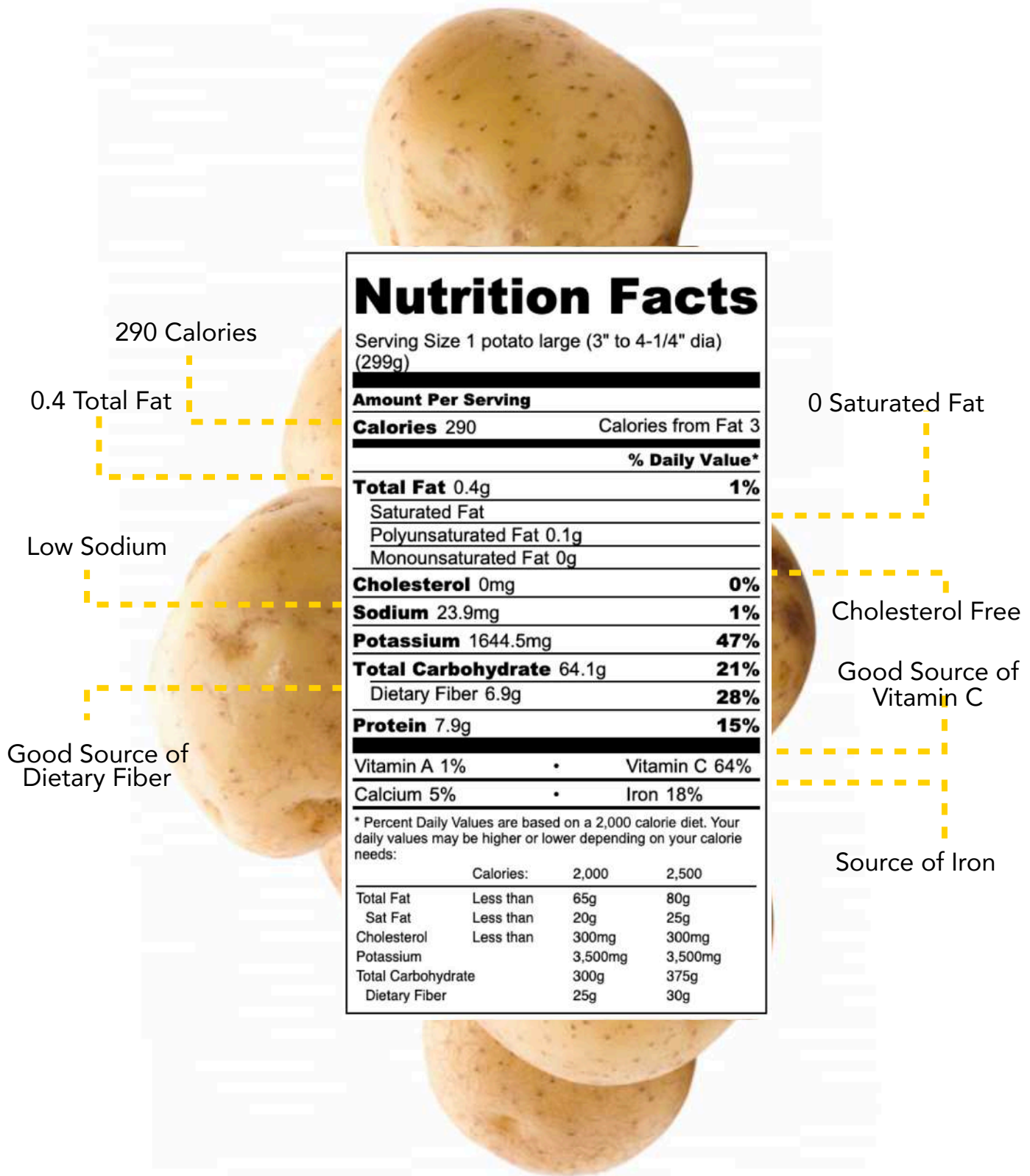


Figure 3. Nutrition Facts of large white potato [3].



“From a nutritional standpoint, potatoes have a bad reputation, but this is undeserved in my opinion. If I had to pick a single food to eat exclusively for an extended period of time, potatoes would be high on the list. One reason is that they contain an adequate amount of complete protein, meaning they don't have to be mixed with another protein source as with grains and legumes. Another reason is that a number of cultures throughout history have successfully relied on the potato as their principal source of calories, and several continue to do so. A third reason is that they're eaten in an unrefined, fresh state.

Potatoes contain an adequate amount of many essential minerals, and due to their low phytic acid content, the minerals they contain are well absorbed. They're rich in magnesium and copper, two minerals that are important for insulin sensitivity and cardiovascular health. They're also high in potassium, which helps control blood pressure, and vitamin C. Overall, they have a micronutrient content that compares favorably with other starchy root vegetables such as taro and cassava, and they offer considerably more micronutrients than refined carbohydrates such as white flour, white rice and white sugar. [5]” - Stephan Guyenet

## 2 | ARE POTATOES HEALTHY?

- Resistant Starch

Starch is a naturally occurring dietary carbohydrate. In plants its primary role is to store energy from photosynthesis in the form of long chains of glucose so that it can be used later to fuel important processes including seed germination.

All starches are composed of two types of polysaccharides: amylose and amylopectin.

Amylopectin is highly branched, leaving more surface area available for digestion. It's broken down quickly, which means it produces a larger rise in blood sugar and subsequently, a larger rise in insulin. Amylose is a straighter chain, which limits the amount of surface area exposed for digestion. This is the dominant structure in Resistant Starch. Foods high in amylose are digested more slowly, and are less likely to spike blood glucose or insulin.

Therefore, it resists digestion in the small intestine and travels on into the large intestine, where it becomes a food source, or prebiotic, for the bacteria that reside there. Thus, resistant starch is so named because it resists digestion.

The purpose for consuming resistant starch is to feed and cross-feed the healthy flora that live in your colon, so that they will multiply and regulate the gut microbiome [Appendix].

“Over the past several years there have been an exponential increase in the number of studies linking imbalances or disturbances of the gut microbiota to a wide range of diseases including obesity, inflammatory bowel diseases, depression, and anxiety. One of the best ways to establish and support a healthy gut microbiome is by providing the right “foods” or prebiotics for your gut bacteria. Some common Paleo food sources of prebiotics include (unripe) bananas, plantains, and cooked and cooled potatoes.

However, if you are on a low carbohydrate diet or don't tolerate those foods well, you can add Resistant starch to your diet without adding digestible carbohydrates. Bob's Red Mill Unmodified Potato Starch is one of the best sources of RS with approximately eight grams of RS in one tablespoon. Potato starch is generally well tolerated even by those who react adversely to nightshades.”- Chris Kresser [6]

- Autoimmune Considerations

“Another reason for avoiding white potatoes is that they belong to the nightshade family [Appendix], a group of vegetables that also includes tomatoes, eggplant, and peppers. Nightshades contain a type of chemicals called glycoalkaloids [Appendix], that can trigger leaky gut symptoms in people who are intolerant to them.

One concern with aggressively supplementing with resistant starch, especially potato starch, is what happens to the composition of your gut microbiome. Different strains of bacteria have specific substrates they like to munch on, and while some are happy to dine on [Resistant Starch], others prefer different forms of fiber.

When we consume unnaturally high (supplemented) levels of one type of resistant starch (or one type of any fiber), we risk selectively feeding certain strains of bacteria while lowering the proportion of other beneficial kinds. Even beneficial probiotic strains of bacteria can overgrow, and this is especially a concern when this comes at the expense of microbial diversity—while much remains unknown about the optimum gut microbiome, one thing we know for sure is that a diverse microbiome is a resilient and healthy one.” - Sarah Ballantyne [7]

### 3 | ARE POTATOES SUSTAINABLE

In 1845, an airborne fungal spore carried aboard a ship from the United States spread across Ireland within a matter of weeks, causing potatoes to turn black and rot. At the time, Irish farmers almost exclusively grew “Irish Lumper” potatoes. So when the fungal disease caused by *Phytophthora infestans* struck their potatoes—it became a national disaster.

Although other countries also experienced the same fungal infection with their potatoes, the effects weren’t as pronounced as they were in Ireland. Although the Irish Potato Famine devastated the nation for 3 years and killed nearly 1/8th of the population, this was not because potatoes were an inherently inferior food source.

What the Irish potato famine illustrated was a fundamental danger associated with monoculture crops, and what can happen when a single crop is relied upon as a primary food source. Ireland relied on potatoes as a staple food because the “Irish Lumper” cultivar of potatoes were well-suited to the soils and the climate, and could be grown in vast quantities [8]. It is speculated that a surplus of calories from potatoes allowed the population to boom. However, when the crop failed, the population no longer had a reliable food source.

Some potatoes are less susceptible to blight, and if multiple varieties of potatoes or other crops were grown, the devastation may not have been so dramatic. Perhaps the Irish potato famine could have been avoided altogether. Today, pesticides and fungicides preclude most crop losses related to infestation and fungal infection. However, chemical interventions and monocultures are not without further concerns.

In monoculture potato production, applications of fungicides, single-species crop production, and tilling methods negatively impact topsoil and disrupt *mycorrhizae* [Appendix], reducing the nutrient and water absorption capacity of the soils. To produce more nutritious food, protect biodiversity, and improve soil profiles, other methods of potato production that include biological fungicides and pesticides that do not adversely affect soil microbiota should be explored.

## 4 | POTATO ARGUMENTS

In order to begin to make critical assessments of the Official Paleo Status of the potato, individual arguments against its inclusion must be critically assessed. Given that the Paleo Diet is a theoretical template, logic must be employed as well when making determinations for an entire community.

- Potatoes weren't eaten until the Agricultural Revolution.

Today there are 151 species of wild potato, progenitors of today's cultivated potato [9]. Wild species of potato exist in diverse soils and climates, and are mostly concentrated in South America where potatoes originated.

Although the potato was first cultivated in South America between 7,000 and 9,000 years ago, research suggests they grew wild in the region over 13,000 years ago [8]. Evidence of the use of the potato in pre-Inca cultures exists in ancient altiplano Indian pottery (Nazca and Chimú), dating back to 8,000 years ago, suggesting the possible consumption of potatoes well before the agricultural revolution in the Americas. Thus, the argument that potatoes weren't eaten until the agricultural revolution is inaccurate, and a poor argument against the inclusion of the tuber in the Paleo Diet.

Of note, the Aymara are a potato-dependent and indigenous people who span Peru, northern Chile, and western Bolivia [Figure 5]. And while potatoes are hypothesized to increase insulin resistance and risk of type 2 diabetes [10], cases of diabetes were remarkably low at 1.5%, while pre-diabetes was 3.6%, even among the elderly, despite the high overweight population among the Aymara [11] [Figure 5].



Figure 4. Elderly Aymara woman with wild potatoes.

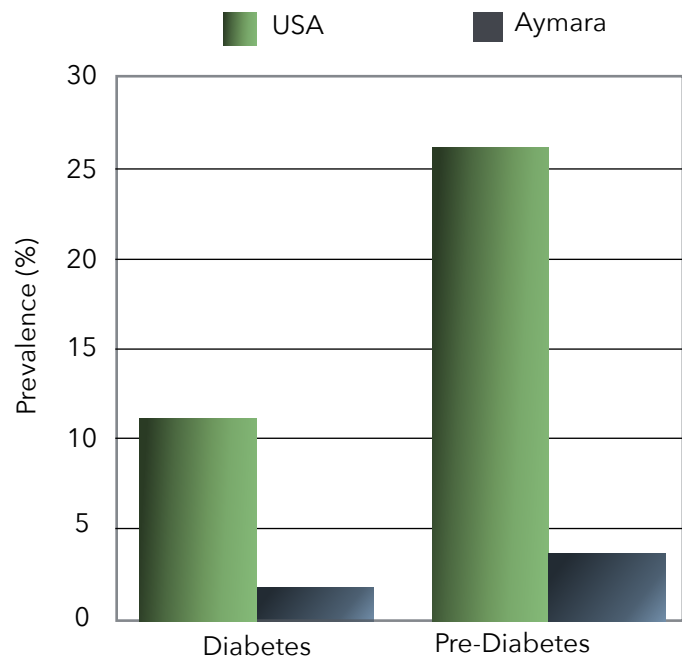


Figure 5. Diabetes and Pre-Diabetes among Aymara vs the United States. Stephan Guyenet WholeHealthSource.com. [11].

- White potatoes aren't paleo because they have a high glycemic index.

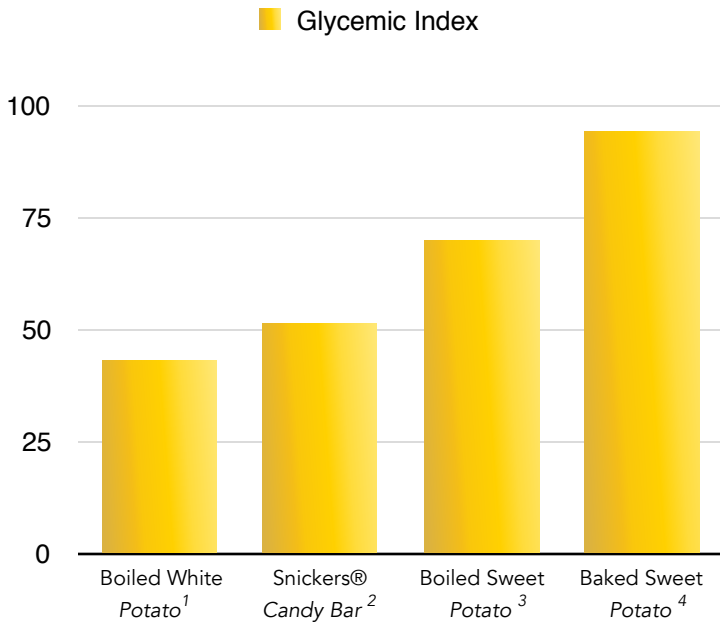


Figure 6. 1. Glycemix Index for various food items. <sup>1</sup>[12]; <sup>2</sup> [13]; <sup>3</sup> [14], <sup>4</sup> [15].

The relevance of the dietary glycemic index (GI) [Appendix] has long been hotly debated. While some organizations still support the concepts, many health professionals consider GI too variable and unreliable for use in clinical practice.

For example, Figure 6 plots the glycemic index using information of various foods. In this graph, baked and boiled sweet potatoes, which are almost universally recognized Paleo foods, have a higher glycemic load than a Snickers candy bar, and a white potato.

If high glycemic index is a factor in determining the Paleo Status of potatoes, then sweet potatoes and other officially recognized Paleo Foods could no longer be classified as Paleo. Thus, glycemic index may not be a good determining factor for the Paleo status of white potatoes.

- Potatoes aren't Paleo because they contain glycoalkaloids.

Glycoalkaloids are natural pesticides produced by nightshade plants, and exist as a defense mechanism to deter predation from bacteria, fungi, viruses, insects, and humans. Glycoalkaloids are bitter compounds which are found throughout the plant, but their concentrations are especially high in leaves, flowers, and unripe fruits [16].

According to Figure 7, different varieties of potatoes contain different levels of glycoalkaloids, and the concentrations differ between the peel and the flesh of the potato. The implications of these findings suggest that concerns about glycoalkaloid load can be mitigated by peeling, and choosing potatoes with low glycoalkaloid content may even be safe for those with autoimmune conditions.

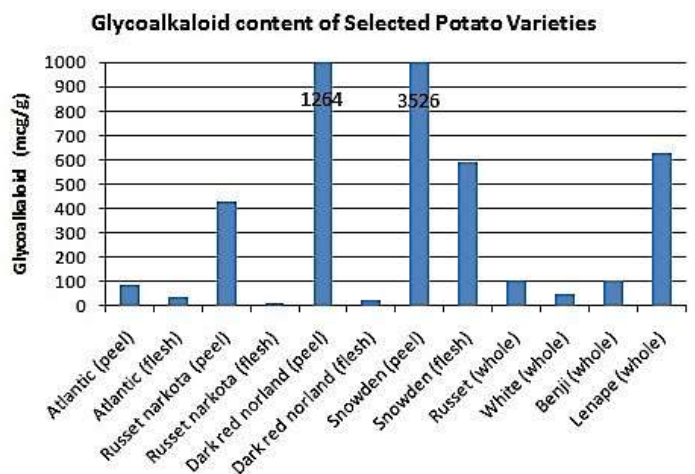


Figure 7. Glycoalkaloid content of Selected Potato Varieties. Potato Glycoalkaloids and Metabolites: Roles in the Plant and in the Diet. Journal of Agricultural and Food Chemistry [16].

Although nightshades contain glycoalkaloids, they are not the only generally recognized Paleo foods which contain them: Cherries, apples, and beets also contain amounts of glycoalkaloid. The two most toxic and present glycoalkaloids in potatoes are called  $\alpha$ -solanine and  $\alpha$ -chaconine.

If glycoalkaloid content were to determine the Paleo status of foods, cherries, apples, beets, and other generally recognized Paleo Diet foods would also no longer be considered paleo. Thus, Glycoalkaloid content may not serve as a good determining factor for the Official Paleo Status of Potatoes, and is a poor argument against the inclusion of white potatoes.

Although glycoalkaloids may not be a deterministic factor in deciding the Official Paleo Status of Potatoes, they may be a concern for anyone with chronic inflammation, as glycoalkaloids can increase intestinal permeability, and can potentially amplify immunological responses [17].

- Potatoes aren't paleo because they are consumed in highly processed forms like french fries and potato chips.

One piece of evidence which has often been cited as a means to indemnify the potato may perhaps do the exact opposite. **Figure 8** suggests is that glycoalkaloid content of potatoes is significantly higher with different methods of processing, and when the skins are present in the end-product.

It also suggests that peeled potatoes are relatively innocuous compared to their processed counterparts, giving weight to the argument that it's not the potato itself that is the culprit, but rather the processing itself.

Table 3. Concentrations (mg/kg) of total glycoalkaloids ( $\alpha$ -chaconine +  $\alpha$ -solanine) in a variety of potato foods.<sup>10</sup>

Food Item	$\alpha$ -chaconine + $\alpha$ -solanine (mg/kg)
Fried skins	567-1450
Chips with skins	95 - 720
Chips (US potatoes)	23 - 180
Frozen baked potatoes	80 - 123
Frozen skins	65 - 121
Baked potato w/jacket	99 - 113
Dehydrated potato flour	65 - 75
Boiled peeled potato	27 - 42
Canned whole new potatoes	24 - 34
Frozen fried potato	4 - 31
Frozen French fries	2 - 29
Dehydrated potato flakes	15 - 23
French fries	0.4 - 8
Frozen mashed potatoes	2 - 5
Canned peeled potato	1 - 2

**Figure 8.** Concentrations of total glycoalkaloids ( $\alpha$ -chaconine and  $\alpha$ -solanine ) in a variety of potato foods. [16].

“Because most Americans eat the highly processed version of the white potato—for instance, french fries and potato chips—consumption of this root vegetable has been linked to obesity and an increased diabetes risk [14].

Meanwhile, sweet potatoes, which are typically eaten whole, have been celebrated [among Paleo Diet adherents] for being rich in nutrients and also having a lower glycemic index than their white potato counterparts.

What science really shows is that white potatoes and sweet potatoes have complementary nutritional differences; one isn't necessarily better than the other. For instance, sweet potatoes have more fiber and vitamin A, but white potatoes are higher in essential minerals, such as iron, magnesium, and potassium.

As for the glycemic index (GI), sweet potatoes are lower on the scale, but this is inconsequential in the large scheme. GI has been shown to lack functional impact (even on glucose control) once you match fiber and macronutrition between the diets compared. The health advantages of low-GI diets are largely attributable to a higher protein and fiber content. Once those variables are controlled, GI's utility becomes trivial to meaningless.

The bottom line, the form in which you consume a potato—for instance, a whole baked or boiled potato versus a processed potato that's used to make chips—is more important than the type of spud." Alan Aragon [18]

Although the argument against certain forms of processing potatoes is valid, the argument which suggests that because a potato chip is unhealthy, that the potato itself must be unhealthy commits the logical fallacy of division [Appendix].

For example, sweet potatoes can be prepared in a highly processed form just as easily as a white potato could. Under this same line of reasoning, we could suggest that the more available processed sweet potatoes become, the less "Paleo" the sweet potato itself, becomes.

Thus, the "Potatoes aren't paleo because they are consumed in highly processed forms like french fries and potato chips" is a poor argument for why potatoes should not be included in the Paleo Diet.

- Potatoes aren't Paleo because they are Nightshades.

One argument against the addition of nightshades into the Paleo Diet stems from the fact that nightshades, members of the botanical Solanaceae family, came from the Americas and were not "discovered" until 1492,

Not only is this a very ethnocentric argument, it grossly undermines the fact that hunter-gatherer peoples occupied the Americas as long as 15,500 years ago and likely consumed nightshades, such as peppers, tomatoes, goji berries, and eggplant [19].

By this same line of reasoning, it could be suggested that all fruits, vegetables, and animals indigenous to the Americas would not be considered Paleo, including North American bison.

The argument against nightshades such as potatoes being excluded in the Paleo Diet because Paleolithic man did not eat them is a poor argument because it is false.

- Potatoes aren't Paleo because [a Paleo Expert] said they weren't.

In the case of potatoes, it an oft-cited appeal to authority is stated the following form: "*Person A says potatoes are not Paleo, therefore this is true because Person A is an expert.*"

Unfortunately, the authority on a subject may not always be right, especially if the line of reasoning to make the assertion is fallacious. And, to argue that something is necessarily true [Appendix] because someone says it is true commits the argument from authority fallacy.

Therefore, it would be illogical to conclude that potatoes are not Paleo because an expert — however popular — came to such an opinion. Thus, the “Potatoes aren’t Paleo because [a Paleo expert] said they aren’t” is a poor argument against the inclusion of potatoes in a Paleo Diet.

- Potatoes aren’t Paleo because they are a high-carbohydrate food.

“Chimps have been known to use sticks to dig up and eat wild tubers, and they’ve got even less salivary amylase to break down starch than we [humans] do.

Evidence exists for human consumption of roots and tubers from multiple sites spanning multiple time periods: Northern Europe (specifically Poland), in the terminal Paleolithic and early Mesolithic. Clearly, we have the physiology (amylase production, glucose metabolism), the tools, and the motivation (attraction to dense caloric sources with negligible or easily neutralized anti-nutrients) to consume starchy tubers.

A human metabolic tabula rasa can handle all macronutrients in whole food form without metabolic dysfunction. That’s why you get folks like the Kitavans eating a high starchy tuber diet with excellent health and fit figures.” - Mark Sisson [20]

The Kitavans [Figure 9] are a group of traditional hunter-gatherers who live on the island of Kitava, an island of Papua New Guinea. The Kitavans almost exclusively consume a diet of universally accepted Paleo foods such as fish, yams, sweet potatoes, and taro. The astonishing macronutrient composition of the Kitavan diet is estimated to be 20% fat, 10% protein, and 70% carbohydrate.

According to Staffan Lindeberg’s studies of the Kitavans, they do not experience cardiac death, stroke, hypertension, or obesity even though an estimated 80% of the population smokes regularly, and have remarkably low activity levels [21].

Although the Kitavans do not traditionally consume white potatoes, the carbohydrates which they do consume do not seem to impart adverse health effects. Nevertheless, the line of reasoning which suggests that carbohydrates are not Paleo would also render foods such as honey as non-Paleo food items despite a rich and well documented history of their prehistoric, and Paleolithic consumption [22].

Thus the argument against potatoes on the basis of carbohydrate content is a poor argument against the inclusion of potatoes in a Paleo Diet.



Figure 9. Male Kitavan. Photocredit Staffan Lindeberg. [21].

## 5 | DISCUSSION

Of the Community Arguments levied against the inclusion of potatoes in the Paleo Diet, the glycemic index argument, the nutritionally void argument, and the low-carbohydrate argument appear to be the most prolific.

While these arguments are poorly constructed or false, these are common belief sets leading to the majority of the opposition against white potatoes inclusion. We posit that these observations may be a function of the Illusory Truth Effect [Appendix] in action, as these false claims are often made without citation, taken as a common knowledge statement of fact, and appear to be prevalent on many community sites and discussion boards.

Whether potatoes belong in your eating strategy may have a lot to do with the state of your metabolism. Deciding whether potatoes fit into your diet is ultimately a personal decision, but exactly how your body reacts to starch – in its current metabolic state, which, remember, is not set in stone – should be the major determinant.” - Mark Sisson

“Whether potatoes are something that will work for you will require experimentation.” - Sarah Ballantyne

“It's all about how you look, feel, and perform when including or excluding any particular food from your diet. Including potatoes.” - Robb Wolf

(Karen Pendergrass, personal communication, September, 2016)

## 6 | CONCLUSION

After careful consideration of the anthropological arguments, accounting for health benefits and concerns regarding the potato, and further reduction of common arguments levied against potatoes for inclusion into the Paleo foods list, The Paleo Foundation Consensus Report concludes that the Official Paleo Status of Potatoes is that they are Paleo, and will be allowed in the Certified Paleo Standards.

## 6 | FINAL REMARKS

“Potatoes are controversial in the Primal and paleo world. They represent a bolus of dietary starch, which can wreak havoc on the insulin resistant, but they are undeniably whole, real foods that don't require much processing beyond simple heating.

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## 8 | Appendix

### Paleolithic Era

While there is some disagreement among archaeologists about when the Paleolithic period began and ended, estimates suggest that it started around 750,000 B.C. to 500,000 B.C., and ended approximately around 10,000 B.C. to 8,000 B.C. when the Neolithic period began, hallmarked by the advent of agriculture. However, this transition point is heavily debated, as different parts of the world achieved the Neolithic stage at different times.

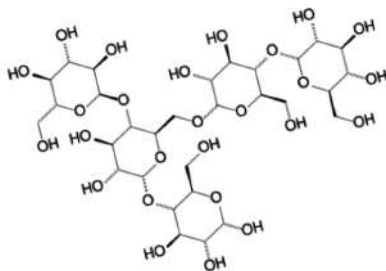
### Paleo Diet

The Paleo diet is an abstract, theoretical template, based on the foods presumed to be eaten by individuals during the Paleolithic era, before the advent of agriculture. These foods included meat and seafood, nuts and seeds, roots and tubers, and fruits and berries. The diet of our ancient Paleolithic ancestors presumably excluded dairy, grains, and highly refined foods.

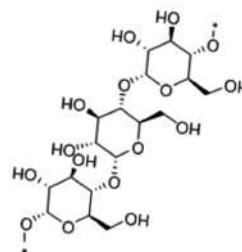
### Resistant Starch

noun: resistant starch (RS) is any starch that is not digested in the small intestine but passes to the large bowel. All starches are composed of two types of polysaccharides: amylose and amylopectin.

Amylopectin is highly branched, leaving more surface area available for digestion. It's broken down quickly, which means it produces a larger rise in blood sugar and subsequently, a larger rise in insulin. Amylose is a straighter chain, which limits the amount of surface area exposed for digestion. This is the dominant structure in Resistant Starch. Foods high in amylose are digested more slowly, and are less likely to spike blood glucose or insulin.



**Amylopectin**

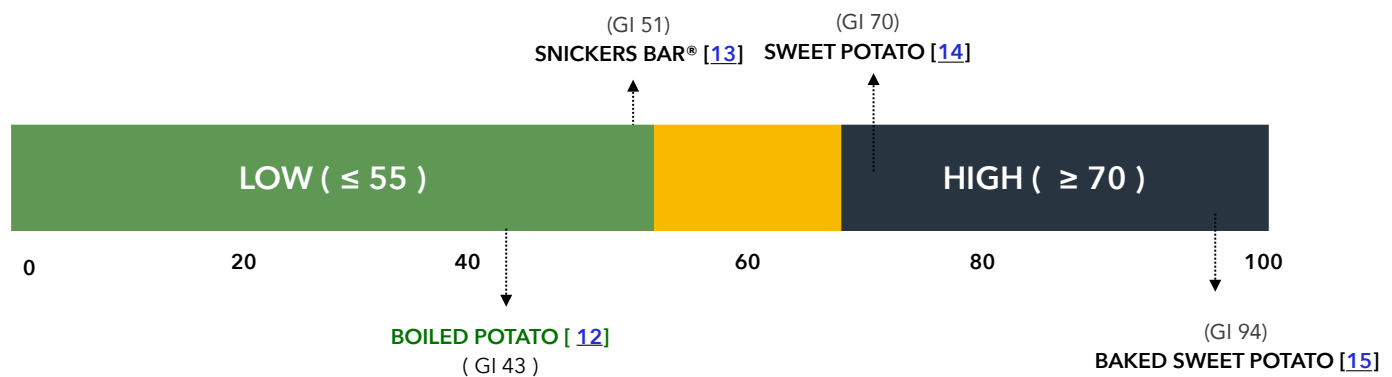


**Amylose**

## Glycemic Index

The Glycemic Index (GI) is a number from 0 to 100 assigned to a food, with pure glucose assigned the value of 100, which represents how quickly the carbohydrate content of a particular food item will be broken down into glucose.

## GLYCEMIC INDEX



### Glycemic Index, Continued.

Even if you know the published Glycemic Index of a particular food, you couldn't be sure of that food's effect on your personal glucose numbers. People vary significantly in their response to foods. The only way to be sure about a particular food's effect on you is to check your blood glucose before and after eating it.

If you are still worried about the glycemic index of potatoes, remember that glycemic index is calculated based on the food in isolation, and that glycemic index may be changed when combined with other foods in a meal. There are several ways to lower the overall glycemic load of potatoes, or slow their digestion down. To lower the overall GI of potatoes, you can add:

Fats such as olive oil, butter, sour cream or avocados.

Vinegar, citrus, or acidic salsas.

Protein. Eating potatoes in combination with protein also slows digestion.

Fiber - Adding other fiber-rich foods, including the potato peel, slows down digestion and lowers GI.

**Gut Microbiome**

Noun: the genomes of the gut microbiota. Gut microorganisms benefit the host by gleaning the energy from the fermentation of undigested carbohydrates and the subsequent absorption of short-chain fatty acids.

**Nightshades**

Noun: a plant related to the potato, typically having poisonous black or red berries. Nightshades can be problematic for many people due to their lectin, saponin, capsaicin, and glycoalkaloid content. However, these properties tend to be even more problematic for those with autoimmune disease.

**Glycoalkaloids**

Noun: Glycoalkaloids are a family of chemical compounds which serve as natural pesticides. There are several that are potentially toxic, most notably those commonly found in nightshades.

**Monoculture**

Noun: the cultivation of a single homogeneous crop, without diversity, across a broad area of land.

**Mychorrhiza**

noun: a fungus that grows as an extension of plant root systems and are more effective in nutrient and water absorption than the roots of plants themselves.

**Glycemic Load**

noun: a classification of different carbohydrates that measures their impact on the body and blood sugar.

**Logical Truth**

All of philosophical logic aims to provide accounts of logical truth and logical consequence. A logical truth is a statement which remains true given all interpretations of its components other than its logical constants. Logical truths are considered to be necessarily true.

**Necessary Truth**

A statement is considered necessarily true if it is impossible for the statement to be false. In other words, no scenario exists that would cause the statement to be false. Thus, a logical truth must be true in every sense, and no situation could arise which would cause a rejection of its logical truth without committing a logical fallacy.

**Fallacy**

A fallacy is the use of an invalid or faulty reasoning in the construction of an argument. A fallacious argument may be committed intentionally to manipulate, while others may be committed unintentionally due to ignorance, carelessness, and poor understanding of logical constructs.

**Fallacy of Division**

Adverb & adjective: When one reasons that something true for the whole must also be true of all or some of its parts.

# PCR

Pendergrass, K. (2016) **Are White Potatoes Paleo? Consideration and Deliberation for White Potatoes in Certified Paleo Standards.** The Paleo Foundation.

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