Review Article

Resistant Starch a New missile against Disease Fighting of Potato Eater

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ABSTRACT

The potato eater of India intakes the normal starch from their potato food items. However, the phenomenon, Resistant Starch (RS)" is the most vital for our health and body to fight against diseases. So this study was conducted to evaluate the most precise characteristics of RS from so that we can get more benefits to lead a better life from potato. It can regulate the insulin and blood sugar. The amount of RS of potato varied from men to men and the intensity of taking the RS depends on the amount of starch intake. The cooking method and the cooling techniques may vary the amount of starch of potato which is not digestible in nature. After cooking, the cooling increases the percent of RS of potato. So it is concluded that the RS could adopt our health into a good sign as healthy individual.

Keywords: cooling after boiling, insulin,sugar, normal starch, resistant starch.

INTRODUCTION

What is resistant starch (RS)

When we think about "starch," Glucose, carbs, elevated blood sugar, insulin spikes, etc comes to mind. When we think about starch that we can digest, absorb, and metabolize as glucose. Officially, RS is "the addition of starch and products of starch degradation not absorbed in the small intestine of healthy individuals." Instead of being metabolised by our enzymes and absorbed as glucose, RS travels freely through the small intestine into the colon, where colonic gut flora metabolize it into short chain fatty acids. Therefore, it is resistant to digestion by the host[1].

Types of RS

Not all RSs are the same. There are four different types[2]

- ✓ Type 1 is present in grains, seeds and legumes and resists digestion because it is bound within the fibrous cell walls
- ✓ Type 2 is present in some starchy foods including raw potatoes and green (unripe) bananas
- ✓ Type 3 is formed when certain starchy foods, such as potatoes and rice, are cooked and then cooled. The cooling convert some of the digestible starches into RSs via a process called retrogradation[3]
- ✓ Type 4 is man-made and formed through chemical procedure.

From the above sorting, it may be said that potato and potato starchy products in belonging to Types 2 and 3.

DISCUSSION

The working of RS

Carbohydrates in the diet are mainly starches. Starches consist of long chains of glucose that are found in grains, potatoes, and most of the foods. But not all of the starch, we eat gets digested because it does not break down to glucose.

Sometimes a small part of it goes through the digestive tract unchanged. That means, it is resistant to digestion. This type of starch is called RS, which functions like soluble fiber.[4,5] However, it reaches the colon where it feeds the friendly bacteria in the git tract[5]. The gut bacteria process the RS into short-chain fatty acids, which are absorbed by the body. That's why; RS will not act as a carbohydrate. Instead, it acts as a food for gut bacteria and what your body absorbs has been converted to fat. RS is in actuality low carb, high fat with provisions for the gut flora as a bonus. Feeding the good gut bacteria – and the cells of the intestinal lining – which can affect hormone levels in the body (glucagon-like peptide 1, etc.), which in return has an effect on blood sugar regulation and insulin sensitivity. Our ancestors no doubt did so as there are plenty of sources of RS in nature[6]. It seems also to be valuable to ensure that gut bacteria and cells get adequate nutrition.

When the bacteria absorb RSs, they form several compounds, including gasses and short-chain fatty acids, most remarkably a fatty acid called butyrate[7], these are finally absorbed by the body.

Benefits against health and disease fighting

For over two decades, studies have observed the health benefits of RS in humans, and the results are pretty interesting. RS has been found to lowers blood sugar levels[8-10], increase insulin sensitivity,[8] improves metabolic health and various profit for digestion[11]. Increase absorption of vital minerals like calcium and magnesium, Decrease absorption of toxic and cancer producing compounds, Affect positive changes in microflora, predominantly increasing bifidobacterium. It also has a "second meal effect" that means if you eat RS with breakfast, it will also minor the blood sugar prickle at lunch[12]. The effect on glucose and insulin metabolism is very impressive. Some studies have originate a 33-50% improvement in insulin sensitivity after 4 weeks of consuming 15-30 g/day[13]. Having low insulin sensitivity (insulin resistance) is assumed to be a major causal factor in some of the world's most serious diseases including metabolic syndrome, obesity, cardiovascular disease, Type 2 diabetes and Alzheimer's disease. By improving insulin sensitivity and lowering blood sugar, RS may help you avoid chronic disease and may make you live both longer and better. The importance of insulin sensitivity cannot be stressed enough.

RS has fewer calories than regular starch Hence, the extra RSs found in food, the smaller number of calories it will contain. Several studies show that soluble fiber supplements can contribute to loss of weight, principally by increasing feelings of fullness and reducing craving for food[14]. It looks like RS has the same effect. Adding RS to meals increases feelings of fullness and noticeably makings people eat less calories[15]. I in person doubt that adding RS to your diet would lead to any most important effect on your weight, but it might make it easier to lose weight with other methods. It reduces the pH level, potently reduces irritation and leads to a number of beneficial changes that should lower the risk of colorectal cancer, which is the fourth most common cause of cancer death worldwide[16,17]. RS may be useful for various digestive disorders Because of its remedial effects on the colon. This includes inflammatory bowel diseases like ulcerative colitis, Crohn's disease, Constipation, Diverticulitis, and Diarrhea[18]. There are some studies in animals showing that RS can cause weight loss, but this has not been studied properly in humans yet

How to add RSs to our diet?

There are two ways to include RSs to our diet either get them from foods, or supplement with them. Numerous commonly consumed foods are high in RS. For example this includes raw potatoes, cooked and then cooled potatoes. If you are presently on a very low-carb diet, these are all high-carbohydrate foods, so they are out of the question (even though you can fit some in if you're on a low-carb diet with carbohydrates in the 50-150 g range which is also low-carbohydrates). That being said, we can add RS to our diet without adding any digestible carbohydrates. For this purpose, many people have suggested Bob's red mill raw potato starch.

Raw potato starch contains about 8 g of RS per tablespoon and approximately has no usable carbohydrate. It is very economical too. It tastes quite bland and you can add it to our diet in different ways, by sprinkling it on our food, mixing it in water, putting it in smoothies, etc. It is important to begin slowly and work your gradient, because too much, too soon can cause flatulence and discomfort. When you reach 50-60 g/day, the excess seems to just pass through so there is noprofit in taking much more than that. It may take time (2-4 weeks) for the production of short-chain fatty acids to raise and to observe all the benefits, so be patient[19]. Four tablespoons of raw potato starch should make available 32 g of RS

Preparing methods

Most of the time we get RS from the food that we eat. The main sources are raw potatoes, cooked, and cooled potatoes. But still now, there is no particular target for RS intake. However, first round data shows that the average American woman consumes about 4 g of RS each day. Experts such as Gerbstadt believe the research is strong enough to advocate doubling that. Adding just 1/2 to 1 cup of cooled RS-rich food per day can do the trap.

Keep it cool in cooked starchy foods, RS is created during cooling. Cooking causes starch to absorb water and swell, and as it slowly cools, portions of the starch become crystallized into the form that prevents digestion. Cooling either at room temperature or in the refrigerator will increase RS levels. Just do not reheat. That breaks up the crystals, causing RS levels to fall[20].

Drawbacks of RS

The people with gut disturbances, especially small intestinal bacterial overgrowth (SIBO) may be affected by RS from potato. In SIBO, bacteria that must be in the large intestine spread out into the small intestine as well. These are the bacteria that just feel affection for a nice dose of RS – if you offer them that food, they'll grow and multiply just like they would in the large intestine. But that's exactly the reverse of what you want to happen! Think about it: If you previously have a gut flora overgrowth, the absolute *last* thing you want to do is give your gut flora an all-you-can-eat buffet. That does not make RS awful; it just means it's not for everyone, and a quick look at the waters is very wise before you jump in with both feet[21].

CONCLUSION

Finally, we can conclude that, if the potato eaters of India starts to take the RS from their miscellaneous potato stuffs so that they will be highly profited against persistent diseases, specially, increased blood sugar level, cancer, diabetics, etc. However, they should be interested in gaining the knowledge about the quality of food intake, which must be adequate in much amount of pure RS and should be purchased from answerable sources.

Future projections and industrial prospects

The potato research body of India should start to carry out the research on screening the variety those content the more RS properties, i.e. the varieties convert their normal starch granules into resistant or indigestible in our guts after consuming a very short time. People responses on RS should also be considered through a regional survey. The potato industrialist of India can begin to produce the potato products (chips, flakes, flours, French fries, etc.) by using the variety those are more resistant in nature.

The modern potato user in India could procure the potato flour which contents the more resistant granules. As results, the owner of potato industry will get more capital instead of conservative wheat/wheat-maize flour marketing. Eventually, the potato exporters could get more foreign currencies by exporting the better screened potato varieties and quality products.

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