

# POTATOES AND RESISTANT STARCH

## 3 reasons to cook, cool and enjoy potatoes

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Cold storage of cooked potatoes promotes the conversion of resistant starch which has been shown to have benefits for gut health, glycemic control and satiety. Emerging research also suggests that resistant starch may be beneficial for immune function and inflammatory conditions.

### What is resistant starch?

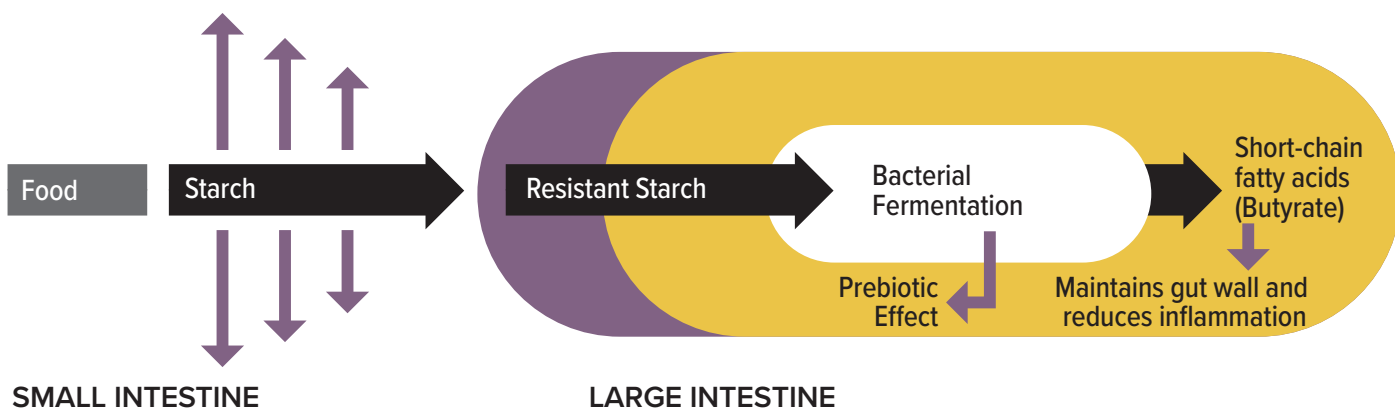
Resistant starch is the portion of starch that is resistant to digestive enzymes and so passes into the large intestine to be fermented by bacteria.

The end-products of resistant starch fermentation are health-promoting metabolites including butyrate, a short chain fatty acid (SCFA). Metabolites play a pivotal role in gut health, metabolic reactions and the immune system.

Butyrate is the main fuel source for epithelial cells in the large intestine and is associated with many important functions which include maintaining the gut cell barrier, regulating appetite and triggering the release of molecules that reduce inflammation and oxidation.

Resistant starch is considered a prebiotic, as it escapes digestion in the small intestine and provides fuel for the bacteria residing in the large intestine, providing health benefits by changing the activity of the microbiota in the large intestine.

### Resistant Starch Metabolic Mechanisms



### Why is resistant starch important?

The health benefits of resistant starch continue to be investigated, but research has confirmed a clear association between resistant starch intake and gut health, blood glucose control and satiety.

- 1. Gut health:** The fermentation products of resistant starch in the large intestine have been shown to modulate the composition of the microbiota in the colon conferring health benefits. Emerging evidence suggests a potential role for resistant starch in colon cancer risk reduction.
- 2. Glycemic Index:** Evidence supports the ability for resistant starch to reduce the glycemic response. Resistant starch is digested over an extended period, preventing spikes in postprandial blood glucose levels. Cold storage also lowers the Glycaemic Index (GI) of cooked potatoes.
- 3. Satiety:** Recent studies indicate resistant starch may have a role in enhancing both short- and long-term satiety.

Further research will contribute to a better understanding of additional health benefits of resistant starch including inflammatory conditions, immune function, appetite and energy homeostasis.



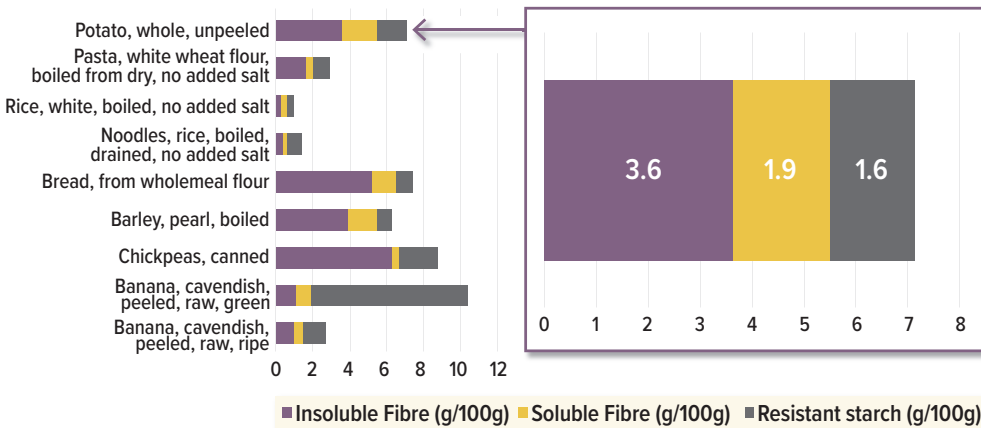
[www.aussiepotatoes.com](http://www.aussiepotatoes.com)

## How does it relate to potatoes?

Resistant starch is formed when potatoes are cooked then cooled. The cooling converts some of the digestible starch into resistant starch through retrogradation of amylose and amylopectin.

Current intake levels of resistant starch in Australia of 6 grams/day are well below suggested intakes for optimal bowel health of 20g/day so increasing consumption of cooked and cooled potatoes is likely to have beneficial health effects.

The Aussie Potatoes project tested six commonly available varieties from across Australia for resistant starch and found them to be an **excellent source of fibre**.



Data source for foods other than potatoes: Food Standards Australia New Zealand (FSANZ)  
The project data was tested using cooked, then cooled whole, unpeeled potatoes.

## How do cooking methods affect the development of resistant starch?

The extent of formation of resistant starch in potatoes is significantly affected by cooking method and temperature at eating. Interestingly, the cooking method and the temperature at eating affects resistant starch of potatoes more than the potato variety. Cooked potatoes that have been cooled have the highest resistant starch levels if eaten cold but retain some resistant starch if reheated. Baked potatoes have a higher resistant starch content than microwaved or boiled potatoes.

## References:

Raatz, S.K., Idso, L., Johnson, L.K., Jackson, M.I., Combs, G.F., 2016. Resistant starch analysis of commonly consumed potatoes: Content varies by cooking method and service temperature but not by variety. Food Chemistry.

Birt, D.F., Boylston, T., Hendrich, S., Jane, J.-L., Hollis, J., Li, L., McClelland, J., Moore, S., Phillips, G.J., Rowling, M., Schalinske, K., Scott, M.P., Whitley, E.M., 2013. Resistant Starch: Promise for Improving Human Health. Advances in Nutrition.

Landon S, Colyer CBG and Salman H. The Resistant Starch Report: An Australian update on health benefits, measurement and dietary intakes. 2012. Food Australia Supplement.

Cooling and reheating food, Food Standards Australia New Zealand

Essential food safety practices: Cool and reheat food safely—to the right temperatures, Food Standards Australia New Zealand



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