

Q: Do potatoes have a high glycemic index (GI)?

A: The GI of potatoes is highly variable and depends on a variety of factors including the potato type, origin, processing and preparation.¹

CONTEXT

The glycemic index (GI) was originally conceived as a tool for the dietary management of type 1 diabetes.¹ Researchers sought to systematically test the impact of different carbohydrates on blood sugar levels, compared to glucose; the test became known as the glycemic index.^{2, 3} Twenty years later, three GI categories were created: high, medium and low—and published in a popular book.⁴ Foods rich in starch (e.g., breads, pasta, rice and starchy vegetables like potatoes) were classified as “high” and high GI foods were hypothesized to negatively impact blood glucose levels as well as overall health.⁴

Shortly after that, researchers created a “healthy eating pyramid” which positioned potatoes at the very top as one of the most unhealthy foods largely due to their “high GI”.⁵ More than thirty years since its inception, the controversy over the clinical significance and practical application of the GI continues. Although hundreds of studies have been published on the glycemic index and numerous popular diet books advocate its use, the connection between glycemic index and long-term health has not been established.

FACTS

- The GI is a very complex, mathematical measure and is defined as the “incremental area under the blood glucose response curve of a 50 gram portion of available carbohydrate from a test food expressed as a percentage of the response to the same amount of available carbohydrate from the reference food (i.e., white bread or glucose).”^{2, 3}
- Research shows that the GI is not a reliable measure.⁶
- Despite claims that potatoes have a high GI, the fact is that the GI of potatoes is highly variable and depends on a number of factors including:^{1, 7, 8}
 - Processing and preparation
 - Variety, origin, maturation
 - What they are consumed with (i.e. protein and fat)
- Both the 2010 and the 2015 Dietary Guidelines committees concluded there is no evidence indicating that GI aids in weight loss or weight loss maintenance or aids in the prevention or treatment of cardiovascular disease.^{9, 10}

REFERENCES

1. Fernandes G, Velangi A, Wolever TMS. Glycemic index of potatoes commonly consumed in North America. *J Am Diet Assoc.* 2005;105:557-562.
2. Jenkins DJ, Wolever TM, Taylor RH, et al. Glycemic index of foods: A physiological basis for carbohydrate exchange. *Am J Clin Nutr.* 1981;34:362-366.
3. Pi Sunyer FX. Glycemic index and disease. *Am J Clin Nutr.* 2002 Jul;76(1):290S-8S.
4. Brand-Miller J, Wolever TMS, Foster-Powell K, Colagiuri S. *The new glucose revolution.* 2nd ed. New York: Marlowe & Company; 2003.
5. Willett WC, Skerrett PJ. *Eat, Drink and Be Healthy: the Harvard Medical School Guide to Healthy Eating.* 2005. Free Press, NY.
6. Mattan NR, Ausman LM, Meng H, et al. Estimating the reliability of glycemic index values and potential sources of methodological and biological variability. *Am J Clin Nutr.* 2016;104:1004-1013.
7. Henry CJ, Lightowler HJ, Kendall FL, Storey M. The impact of the addition of toppings/fillings on the glycaemic response to commonly consumed carbohydrate foods. *Eur J Clin Nutr.* 2006 Jun;60(6):763-9.
8. Henry CJ, Lightowler HJ, Strik CM, Storey M. Glycaemic index values for commercially available potatoes in Great Britain. *Br J Nutr.* 2005 Dec;94(6):917-21.
9. U.S. Department of Health and Human Services and U.S. Department of Agriculture. Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010. Available at <https://health.gov/dietaryguidelines/2010/>
10. U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015 – 2020 Dietary Guidelines for Americans. 8th Edition. December 2015. Available at <http://health.gov/dietaryguidelines/2015/guidelines/>