



TITLE: The Inhibitory Effects of Polyphenols on Carbohydrate Digestion in Humans: How to Correctly Assess Their Impacts on Metabolic Health

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ABSTRACT

Weight gain and diabetes (diabesity) are global health problems requiring urgent research and regulatory attention. Impaired or malabsorbed dietary starches and sugars upon digestion influence carbohydrate metabolism, affecting the physiology of adiposity, insulin resistance and sugar spiking in the bloodstream. Although synthetic anti-obesity and anti-diabetes drugs are available, they come with considerable risks of adverse effects and variable outcomes. Interestingly, there is a growing interest globally in using polyphenols to manage the combined adverse health effects of diabesity. Strong evidence shows the effective and safer use of polyphenols as an alternative for managing diabesity through food innovation or supplements. We provide further evidence of the effectiveness of natural polyphenol compounds in inhibiting carbohydrate digestive enzymes and suppressing appetite, assessed using recently validated state-of-the-art methods and clinical experimental data. We suggest that most polyphenols can be therapeutically used in functional foods to manage diabesity. However, research methodologies in measuring the effectiveness of food compounds in inhibiting carbohydrate digestion should be carefully planned.

BIOGRAPHY

Elizabeth Barber was awarded her PhD by Monash University, Australia. She is an academic and a Registered Nutritionist with over 20 years of experience in lab-based and clinical research, student supervision and grant application. She and her team have produced multiple highly cited articles in reputable peer-reviewed journals such as Nature Protocols. Her expertise includes detailed analysis of the biological potential and chemical composition of functional foods, including digestion, metabolism and health impact. Using advanced molecular nutrition and food science research skills, she is currently exploring the role of plant bioactive compounds (polyphenols) in food innovation and how these foods induce healthy digestion to improve metabolic dysfunction and inflammation.



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