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Resveratrol and obesity: Can resveratrol relieve metabolic disturbances?

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Abstract

There is an increasing need for novel preventive and therapeutic strategies to combat obesity and related metabolic disorders. In this respect, the natural polyphenol resveratrol has attracted significant interest. Animal studies indicate that resveratrol mimics the effects of calorie restriction via activation of sirtuin 1 (SIRT1). SIRT1 is an important player in the regulation of cellular energy homeostasis and mitochondrial biogenesis. Rodent studies have shown beneficial effects of resveratrol supplementation on mitochondrial function, glucose metabolism, body composition and liver fat accumulation. However, confirmation of these beneficial effects in humans by placebo-controlled clinical trials remains relatively limited. This review will give an overview of pre-clinical and clinical studies examining the effects of resveratrol on obesity-induced negative health outcomes. This article is part of a Special Issue entitled: Resveratrol: Challenges in translating pre-clinical findings to improved patient outcomes.

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KEYWORDS: Mitochondria; Obesity; Resveratrol; Sirtuin; Type 2 diabetes

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