

The cognitive and cerebral blood flow effects of the polyphenol resveratrol in healthy young humans and a model of aging

Emma Wightman

Northumbria University, UK

Resveratrol is a stilbene polyphenol found predominantly in grapes. It has been associated with a plethora of health effects with much of this literature supporting its benefit to cardioprotection. This latter role is likely underpinned by the ability of resveratrol to modulate blood flow, making it of great interest as a potential modulator of cerebral blood flow (CBF) and therefore, neural/cognitive function. However, the natural metabolism of resveratrol results in quick excretion and poor bioavailability in human plasma. After finding robust cerebral blood flow effects but no cognitive enhancement in a cohort of healthy 18-35 years old after 250 and 500 mg, this lab has conducted 2 studies which attempt to alter natural resveratrol metabolism, to increase bioavailability and to assess the effects of this on cerebral blood flow (CBF) and behavioral outcomes. Study 1 co-supplemented 250 mg resveratrol with 20 mg of the bioenhancer piperine and demonstrated increased efficacy on CBF but no significant alteration in plasma levels or cognition/mood. Study 2 investigated whether repeated dosing of resveratrol (500 mg daily, for 28-days) could inculcate increased plasma levels and improve CBF, health, mood, sleep and cognition/mood. Here resveratrol demonstrated acute CBF affects attenuated fatigue across the entire 28-days and suggests that cumulative plasma resveratrol levels can be achieved by chronic consumption. However, cognitive effects were still elusive in these cohorts at their cognitive peak. The most recent study we have conducted uses hypoxia as a model of aging to ascertain whether the resulting cognitive deficits can be attenuated by resveratrol and this data will be presented here.

Biography

Emma Wightman is currently a Senior Lecturer of Psychology in the Department of Psychology at Northumbria University in the United Kingdom. Her research conducted within the Brain Performance and Nutrition Research Centre involves investigating the effects of nutritional interventions, in particular polyphenols, on human brain function, including cognitive function, metabolic parameters and cerebral blood-flow.