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Fruit modulation of the effects of fatigue on cognitive performance

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### **Abstract**

Cognitive fatigue hinders performance in social, academic and physical environments and has a profound effect on the ability of a person to function and make decisions. Research into reducing or eliminating cognitive fatigue and its effects have been largely inconclusive but an emerging area of research is focussing on phytochemicals effects on optimising cognition. The present study examined the effects of blackcurrant supplementation on cognitive fatigue and physical markers of performance. This required 11mg of freeze-dried blackcurrant powder and water mixture to be consumed by participants before completing a psychometric and exercise test. Blackcurrants are a high source of phytochemicals but are under-researched compared to other berry fruit, such as blueberries. Sixty participants completed two sessions which composed of a familiarisation session and an intervention session. Participants were randomly assigned to the blackcurrant supplementation or the control group. Each session consisted of six blocks of the Stroop test, a Standard VO<sub>2</sub>max test and followed by a post-exercise Stroop test. The purpose of the Standard VO<sub>2</sub>max test to exhaustion was to induce physical and cognitive fatigue. At the intervention session, participants ingested either a blackcurrant or sugar-controlled juice one hour before testing. Analyses demonstrated that the blackcurrant supplement had no effect on cognitive performance or physical markers. However, it was questionable as to whether the study had enough statically power to test for the small effect sizes due to participants being unable to complete testing and some data sets unable to be used. Future research should focus on larger sample sizes and high doses of anthocyanin to observe if blackcurrant can have cognitive and physiological effects.

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