The Amelioration of the Impact of Physical Fatigue on Cognitive Performance by Phytochemicals

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Abstract

Fatigue is common in everyday life. It is experienced as either cognitive or physical fatigue, both of which are intertwined. Researchers are interested in investigating the ability of phytochemical supplementation to improve cognitive performance by diminishing the effects of physical fatigue. The results thus far have been highly inconsistent (Brisswalter & Arcelin, 1997). The present study examined the effects of phytochemical supplementation utilising a daily dose of 240 mg of blackcurrant extract, a berry fruit high in phytochemicals but under-researched compared to other berry fruits, such as blueberries. Fifty healthy participants completed two 3-hour trials, the first during Week 1 and the second 6 weeks later. Half of the participants were randomly assigned to the blackcurrant supplement group, the supplement being consumed each day over the 6-week period. Each trial consisted of five cognitive tests followed by a tailored HIIT cycle test. The purpose of the HIIT was to induce physical fatigue and took less than 10 min overall. Cognitive tasks and mood questionnaires were completed pre and post consumption of the supplement at both Week 1 and Week 6. Participants received the blackcurrant supplement 1 hour before post task measurements were completed. Analyses demonstrated that the blackcurrant supplementation had no influence on cognitive performance. However, it is questionable as to whether the degree of physical fatigue induced was sufficient to negatively influence cognitive performance, even though previous studies had found it to be so. Overall, it was concluded that blackcurrant supplementation taken across 6 weeks did not facilitate cognitive performance after physical fatigue. Possible explanations for these findings are discussed, including ways for future research to move forward.

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