

Anthocyanin intake is associated with improved memory in older adults with Mild Cognitive Impairment

K. Kent¹, M. Yousefi², V. do Rosario², Z. Fitzgerald³, S. Broyd³, D. Visentin⁴, S. Roodenrys⁵, K. Walton² and K. Charlton²

¹School of Health Sciences, Western Sydney University, Campbelltown, NSW 2560, Australia,

²School of Medical, Indigenous and Health Sciences, University of Wollongong, Wollongong, NSW 2500, Australia,

³Department of Rehabilitation & Medical Psychology, Port Kembla Hospital, Warrawong, NSW 2502, Australia,

⁴School of Health Sciences, University of Tasmania, Launceston, Tas. 7250, Australia and

⁵School of Psychology, University of Wollongong, Wollongong, NSW 2500, Australia

Research on the role of dietary anthocyanins in preventing cognitive decline in older adults shows promise. However, the usual dietary intake of anthocyanins in people diagnosed with Mild Cognitive Impairment (MCI) and relationship with comprehensive indices of memory and cognition has not been well studied, limiting understanding of the potential for therapeutic interventions in this group. This study⁽¹⁾ investigated the association between usual anthocyanin intake and multiple indices of memory and cognition in 40 older adults diagnosed with MCI (Mini Mental State Examination score of ≥ 24 and an estimated premorbid IQ of > 80 using a Test of Premorbid Functioning) that were recruited to a randomised clinical trial. It was hypothesised that daily anthocyanin intake would be similar to healthy older adults and that higher anthocyanin intake would be associated with better cognitive performance. Cognitive performance was assessed using a battery of tests including the Rey Auditory Verbal Learning Test (RAVLT), the Everyday Memory Questionnaire, the Complex Figure Test, the Royal Prince Alfred Prospective Memory Test (RPA-ProMem), Comprehensive Assessment of Prospective Memory questionnaire self-report and the Depression Anxiety Stress Scale (DASS-21). Dietary intake was assessed through 3-day food records and anthocyanin intake quantified using the PhenolExplorer food composition database. Multivariate linear regression adjusting for age, education and depression scores (DASS-21) was used to compare differences in cognitive performance between higher (≥ 10 mg/day) and lower consumers (< 10 mg/day). Overall, participants (mean age 77 (SD 6.9) years and mean BMI 25.9 (SD 3.0) kg/m²) had low median intake of anthocyanins (5.3; IQR: 32.1 mg/day), with the lower consumer group having negligible dietary anthocyanins (median: 0.13; IQR: 1.5 mg/day), and the higher consumer group eating above the national average (median: 35.5; IQR: 71.5 mg/day). Higher anthocyanin consumers demonstrated better memory retention on the RAVLT, recalling between two and three words more than lower anthocyanin consumers after a short delay ($B = 2.07$, $SE = 0.93$, 95% CI [0.18, 3.96], $p = 0.03$) and longer delay ($B = 2.68$, $SE = 1.11$, 95% CI [0.43, 4.94], $p = 0.02$). Higher anthocyanin intakes were also associated forgetting around two words less on average over the RAVLT long-delay period ($B = -2.63$, $SE = 0.63$, 95% CI [-3.90, -1.35], $p < 0.001$). Associations between anthocyanins and performance on other cognitive tests was mixed, with most showing a null effect. Further investigation of the protective role of usual consumption of dietary anthocyanins for memory and cognition, in particular utilizing tests of verbal learning and memory, in pathological and normal ageing appears warranted. This cross-sectional study utilizes baseline data from a randomised controlled trial registered with the Australian New Zealand Clinical Trials Registry (ACTRN12618001184268).

Reference

1. Kent K, Yousefi M, do Rosario VA, et al. (2022) *Nutr Res* 104, 36–43.