proceedings

MDPI

Abstract

The Relationship between Mushroom Intake and Cognitive Performance: An Epidemiological Study in the European Investigation of Cancer Norfolk Cohort (EPIC-Norfolk) †

Sara Cha, Lynne Bell and Claire M. Williams *

School of Psychology & Clinical Language Sciences, University of Reading, Whiteknights Road, Earley Gate, Reading RG6 6ES, UK; sara.cha@pgr.reading.ac.uk (S.C.); l.bell@reading.ac.uk (L.B.)
* Correspondence: claire.williams@reading.ac.uk; Tel.: +44-(0)1183787540
† Presented at the 14th European Nutrition Conference FENS 2023, Belgrade, Serbia, 14–17 November 2023.

Abstract: Background and Objectives: Ageing is often associated with a decline in cognitive function. Nutrients from plant-based sources such as vegetables have previously been shown to benefit brain health. Only a few studies have investigated the impact of mushrooms on cognitive performance. The European Prospective Investigation of Cancer (EPIC-Norfolk) cohort provides information on habitual diet, including mushroom consumption, alongside cognitive scores. The purpose of this study was to track mushroom intake in this cohort across an 18-year period (EPIC checkpoints 1HC, 2HC, and 3HC), and investigate the relationship between mushroom intake and cognitive performance at 3HC. Methods: A total of 8623 participants (mean age: 69 years) were enrolled in the cohort. Mushroom intake was measured via food frequency questionnaire and participants were categorised into groups according to their mushroom consumption frequency. Cognitive performance was examined using a battery of validated tests (EPIC-COG), assessing several sub-domains of memory and executive function, plus a calculated global composite score. Analysis of variance (ANOVA) was used to investigate changes in mushroom intake across the three checkpoints. To investigate the relationship between mushroom intake and cognitive performance at 3HC, multivariate analysis (MANOVA) was used, treating each EPIC-COG test as a dependent variable. Finally, unadjusted and adjusted regression models were constructed to examine the relationship between global cognitive scores and mushroom intake. Results: Complete mushroom intake data (across all three checkpoints) was available for 5100 participants. A significant decrease in mushroom intake was found between 1HC and 3HC in this sample. A total of 5421 participants provided mushroom intake and EPIC-COG scores at 3HC. Multivariate analysis of this sample showed that participants consuming >1 portion mushroom/week performed significantly better in memory-based tasks compared to participants with lower/no intake. All regression models revealed higher mushroom intake to be predictive of higher global cognitive scores. Conclusion: The findings from this study suggest that regular mushroom consumption may be beneficial to cognitive health during aging. It is recommended that the potential benefits of this important food group be highlighted in public health campaigns with a view to increasing consumption rates in older-adult populations.

Keywords: epidemiological; older adults; mushroom intake; cognitive performance; memory

check for updates

Citation: Cha, S.; Bell, L.; Williams, C.M. The Relationship between Mushroom Intake and Cognitive Performance: An Epidemiological Study in the European Investigation of Cancer Norfolk Cohort (EPIC-Norfolk). *Proceedings* **2023**, *91*, 341. https://doi.org/10.3390/proceedings2023091341

Academic Editors: Sladjana Sobajic and Philip Calder

Published: 19 February 2024

Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).

Author Contributions: Conceptualization, S.C., L.B. and C.M.W.; methodology, L.B., S.C. and C.M.W.; formal analysis, L.B. and S.C.; writing—original draft preparation, L.B. and S.C.; writing—review and editing, L.B. and C.M.W. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Restrictions apply to the availability of these data. Data were obtained from the EPIC-Norfolk Study (https://www.epic-norfolk.org.uk/for-researchers/data-sharing/datarequests/, accessed on 4 December 2023).

Conflicts of Interest: The authors declare no conflicts of interest.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.