

Dossier thématique : Prévention, promotion de la santé cognitive

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Santé cognitive : prévention et promotion chez les personnes âgées

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BIBLIOTHÉCAIRE

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Ye, K. X., L. Sun, et al. (2023). "The role of lifestyle factors in cognitive health and dementia in oldest-old: A systematic review." *Neuroscience and biobehavioral reviews* 152: 105286. <https://dx.doi.org/10.1016/j.neubiorev.2023.105286>

Oldest-old is the fastest growing segment of society. A substantial number of these individuals are cognitively impaired or demented. Given the lack of a cure, attention is directed to lifestyle interventions that could help alleviate the stress in patients, their families, and society. The aim of this review was to identify lifestyle factors with important roles in dementia prevention in oldest-old. Searches were conducted in PubMed, EMBASE, Scopus and Web of Science. We identified 27 observational cohort studies that met the inclusion criteria. Results showed that eating a healthy diet with plenty of fruits and vegetables, and participation in leisure and physical activities may protect against cognitive decline and cognitive impairment among oldest-old regardless of the APOE genotype. Combined lifestyles may generate multiplicative effects than individual factors. This is the first review known to systematically examine the association between lifestyle and cognitive health in oldest-old. Lifestyle interventions for diet, leisure, or a combination of lifestyles could be beneficial for cognitive function in oldest-old. Interventional studies are warranted to strengthen the evidence. Copyright © 2023 The Authors. Published by Elsevier Ltd.. All rights reserved.

Coley, N., C. Giulioli, et al. (2022). "Randomised controlled trials for the prevention of cognitive decline or dementia: A systematic review." *Ageing research reviews* 82: 101777. <https://dx.doi.org/10.1016/j.arr.2022.101777>

Dementia prevention research has progressed rapidly in recent years, with publication of several large lifestyle intervention trials, and renewed interest in pharmacological interventions, notably for individuals with Alzheimer's disease biomarkers, warranting an updated review of results and methodology. We identified 112 completed trials testing the efficacy of single-domain pharmacological (n = 33, 29%), nutritional (n = 27, 24%), physical activity (n = 18, 16%) and cognitive stimulation (n = 13, 12%), or multidomain (n = 22, 20%) interventions on incident dementia, or a relevant intermediate marker (e.g. cognitive function, biomarkers or dementia risk scores) in people without dementia. The earliest trials tested pharmacological interventions or nutritional supplements, but lifestyle interventions predominated in the last decade. In total, 21 (19%) trials demonstrated a clear beneficial effect on the pre-specified primary outcome (or all co-primary outcomes), but only two (10%) were large-scale (testing blood pressure lowering (Syst-Eur) or multidomain (FINGER) interventions on incident dementia and cognitive change in cognitive function, respectively). Of the 116 ongoing trials, 40% (n = 46) are testing multidomain interventions. Recent methodological shifts concern target populations, primary outcome measures, and intervention design, but study design remains constant (parallel group randomised controlled trial). Future trials may consider using adaptive trials or interventions, and more targeted approaches, since certain interventions may be more effective in certain subgroups of the population, and at specific times in the life-course. Efforts should also be made to increase the representativeness and diversity of prevention trial populations. Copyright © 2022. Published by Elsevier B.V.

Costello, M. M., C. E. McCarthy, et al. (2022). "Household-level lifestyle interventions for the prevention of cognitive decline; A Systematic review." Archives of gerontology and geriatrics 98: 104565. <https://dx.doi.org/10.1016/j.archger.2021.104565>

BACKGROUND: Lifestyle interventions targeting households may be an effective means of promoting healthier cognitive function in later life, with extended benefit to other household members. In this systematic review and meta-analysis, we sought to assess the effect of targeting lifestyle behaviours of households on cognitive outcomes METHODS: An electronic search strategy was designed to identify randomised controlled trials (RCTs) where households were randomised to receive a lifestyle intervention for the prevention of cognitive decline, from database inception until April 2020. Our initial search identified no eligible studies, so we revised our search strategy to include trials enrolling dyads. We reported the cognitive outcomes, functional outcomes, caregiver outcomes and long-term care (LTC) admissions for eligible studies., FINDINGS: We identified no RCTs which randomised households to receive a lifestyle intervention for preventing cognitive decline. We identified five RCTs (n = 1721, with mean follow-up of 9.6 months) which randomised dyads, which evaluated diet (two trials) and physical activity (three trials)., CONCLUSION: Trials evaluating dietary and exercise interventions in dyads were identified. No trial demonstrated a significant association of interventions with change in cognitive testing, functional outcomes or long-term care admissions, although trials were small with short-term follow-up. Future studies should consider targeting lifestyle behaviours of households for prevention of dementia. Copyright © 2021 Elsevier B.V. All rights reserved.

Oberlin, L. E., A. Jaywant, et al. (2022). "Strategies to Promote Cognitive Health in Aging: Recent Evidence and Innovations." Current psychiatry reports 24(9): 441-450. <https://dx.doi.org/10.1007/s11920-022-01348-x>

PURPOSE OF REVIEW: We review recent work on applications of non-pharmacologic strategies to promote cognitive health in older adulthood and discuss potential network mechanisms, limitations, and considerations for improving intervention uptake and efficacy., RECENT FINDINGS: In healthy older adults and patients with mild cognitive impairment, cognitive training produces global and domain-specific cognitive gains, though effect sizes tend to be modest and transfer is variable. Non-invasive brain stimulation has shown moderate success in enhancing cognitive function, though the optimum approach, parameters, and cortical targets require further investigation. Physical activity improves cognitive functions in late life, with emerging trials highlighting key intervention components that may maximize treatment outcomes. Multimodal interventions may be superior to single-component interventions in conferring cognitive gains, although interpretation is limited by modest sample sizes and variability in training components and parameters. Across modalities, individual differences in patient characteristics predict therapeutic response. These interventions may advance cognitive health by modulating functional networks that support core cognitive abilities including the default mode, executive control, and salience networks. Effectiveness of cognitive enhancement strategies may be increased with clinician-led coaching, booster sessions, gamification, integration of multiple intervention modalities, and concrete applications to everyday functioning. Future trials involving rigorous comparisons of training components, parameters, and delivery formats will be essential in establishing the precise approaches needed to maximize cognitive outcomes. Novel studies using patient-level clinical and neuroimaging features to predict individual differences in training gains may inform the development of personalized intervention prescriptions to optimize cognitive health in late life. Copyright © 2022. The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature.

Studer-Luethi, B., M. Brassler, et al. (2021). "A cross-sectional survey of a public, evidence-based multimodal program for cognitive health in older adults." Archives of public health = Archives belges de sante publique 79(1): 165. <https://dx.doi.org/10.1186/s13690-021-00670-9>

BACKGROUND: In recent decades, the proportion of older adults in the population has continued to rise, and with it, the need for intervention programs to maintain cognitive functions into old age. Multiple lifestyle factors, including physical, cognitive, and social activities, are crucial to forestalling a decline in cognitive functions. However, Covid-19 curtailed most activities, and therefore, strategies are needed to support older adults in remaining cognitively healthy. This study describes a newly developed and publicly available multimodal program, called "brain coach", to support and stimulate cognitive activity in older adults. The autonomy supportive program integrates into daily life recommendations for evidence-based physical, cognitive, social, mindful, and creative activation exercises., METHODS: The study design corresponds to a correlational, analytical, and cross-sectional study with 660 older adults, who participated in the program for at least 3 months and completed an online survey., RESULTS: The survey results demonstrate that the average age of the participants was 71 years and 75 % were female. Participants experienced benefits in memory, well-being, attitudes towards the brain, and lifestyle habits. Importantly, time invested in the intervention and participant's positive attitude toward brain health and neuroplasticity, show positive relationships with the experienced benefits. CONCLUSIONS: The results reveal the potential of a public program with a multimodal approach to increase cognitive health and promote an active lifestyle. Further research will explore the effects of such a multimodal intervention in a longitudinal randomized controlled trial study. Copyright © 2021. The Author(s).

Matyas, N., F. Keser Aschenberger, et al. (2019). "Continuing education for the prevention of mild cognitive impairment and Alzheimer's-type dementia: a systematic review and overview of systematic reviews." BMJ open 9(7): e027719. <https://dx.doi.org/10.1136/bmjopen-2018-027719>

OBJECTIVE: To summarise evidence on the preventive effects of continuing education on mild cognitive impairment and Alzheimer's-type dementia in adults 45 years or older., DESIGN: Systematic review and overview of systematic reviews., DATA SOURCES: We systematically searched MEDLINE, PsycINFO, EMBASE, Cochrane Central Register of Controlled Trials, Cumulative Index to Nursing and Allied Health Literature, and Scopus for published studies and grey literature databases for unpublished studies from January 1990 to April 2018., METHODS: To assess evidence directly addressing our objectives, we conducted a systematic review. Because we were aware of a dearth of direct evidence, we also performed an overview of systematic reviews on leisure activities that mimic formal continuing education. We a priori established the inclusion and exclusion criteria. Two authors independently assessed inclusion and exclusion at the abstract and full-text level, rated the risk of bias, and determined the certainty of evidence using the Grading of Recommendations Assessment, Development and Evaluation. We resolved all discrepancies by consensus. We synthesised the available evidence narratively., RESULTS: Our searches identified 4933 citations. For the systematic review, only two publications on the same prospective cohort study (Tasmanian Healthy Brain Project) met the inclusion criteria; for the overview of reviews, we included five systematic reviews. Based on 459 participants, preliminary data of the ongoing cohort study indicated that cognitive reserve statistically significantly increased in persons attending university classes compared with the control group (92.5% vs 55.7%, $p < 0.01$). Likewise, language processing capacities statistically significantly improved ($p < 0.01$). Episodic memory, working memory and executive function did not differ significantly between groups. Systematic reviews consistently reported a positive association between participation in cognitively stimulating leisure activities and reduced incidence of dementia and improved cognitive test performance., CONCLUSION: Available

results demonstrate that cognitive reserve increases through continuing education and show a positive association of cognitive leisure activities with both improved cognitive function and lower dementia incidence., PROSPERO REGISTRATION NUMBER: CRD42017063944. Copyright © Author(s) (or their employer(s)) 2019. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

Gorelick, P. B. (2018). "Prevention of cognitive impairment: scientific guidance and windows of opportunity." *Journal of neurochemistry* 144(5): 609-616. <https://dx.doi.org/10.1111/jnc.14113>

Cognitive impairment of later life is an important medical and public health challenge. Worldwide it is estimated that the number of persons with dementia will continue to increase, especially in low- and middle-income countries. An important public health challenge relates to the prevention of cognitive decline and dementia. Specifically, is it possible to maintain cognitive vitality or prevent or slow cognitive decline? In this opinion-based piece, I review United States-based guidance statements for maintenance of cognition and select single and multidomain trials designed to preserve cognitive function. Guidance statements now recommend that we treat or prevent cardiovascular risks in hopes of preventing cognitive impairment or decline. I discuss potential gaps between guidance statements and interventional studies, and provide comments on where windows of opportunity may exist to close potential gaps in our quest to maintain cognitive vitality. This article is part of the Special Issue "Vascular Dementia". Copyright © 2017 International Society for Neurochemistry.

NUTRITION

Hong, Y., E. Clark, et al. (2023). "Evidence for Improved Cognitive Health with Diet: A Narrative Review." *Alternative therapies in health and medicine* 29(7): 12-17. <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=medl&NEWS=N&AN=35180098>

Background: Despite growing interest in nutrition as a behavioral intervention to improve cognitive health in clinical populations, many providers find it challenging to provide specific nutritional recommendations. We aimed to review and synthesize current empirical research on this topic and provide considerations for healthcare providers working with adults who wish to optimize their cognition via dietary improvements., Methods: We performed a narrative review of research published between January 2009 and May 2021 on 5 popular dietary interventions: the Mediterranean diet, Dietary Approaches to Stop Hypertension (DASH), the Mediterranean-DASH Intervention Diet for Neurodegenerative Delay (MIND), the ketogenic diet and intermittent fasting., Results and Conclusions: Of the 5 dietary interventions, the Mediterranean diet has been the most extensively investigated, and there is evidence supporting its cognitive benefits. However, operationalization of the Mediterranean diet varies across studies, rendering the results inconclusive. The DASH diet and the MIND diet have stronger operationalization and showed evidence of cognitive benefits. More longitudinal studies and/or randomized clinical trials should be conducted on these 2 relatively new interventions. Finally, there is limited research with human participants regarding the ketogenic diet and intermittent fasting, which are found to be cognitively protective within stringent parameters. Definitions for these 5 dietary patterns and practice tips and recommendations are provided.

Naomi, R., M. D. Yazid, et al. (2023). "Dietary Polyphenols as a Protection against Cognitive Decline: Evidence from Animal Experiments; Mechanisms and Limitations." Antioxidants (Basel, Switzerland) 12(5). <https://dx.doi.org/10.3390/antiox12051054>

Emerging evidence suggests that cognitive impairments may result from various factors, such as neuroinflammation, oxidative stress, mitochondrial damage, impaired neurogenesis, synaptic plasticity, blood-brain barrier (BBB) disruption, amyloid beta protein (Abeta) deposition, and gut dysbiosis. Meanwhile, dietary polyphenol intake in a recommended dosage has been suggested to reverse cognitive dysfunction via various pathways. However, excessive intake of polyphenols could trigger unwanted adverse effects. Thus, this review aims to outline possible causes of cognitive impairments and how polyphenols alleviate memory loss via various pathways based on in vivo experimental studies. Thus, to identify potentially relevant articles, the keywords (1) nutritional polyphenol intervention NOT medicine AND neuron growth OR (2) dietary polyphenol AND neurogenesis AND memory impairment OR (3) polyphenol AND neuron regeneration AND memory deterioration (Boolean operators) were used in the Nature, PubMed, Scopus, and Wiley online libraries. Based on the inclusion and exclusion criteria, 36 research papers were selected to be further reviewed. The outcome of all the studies included supports the statement of appropriate dosage by taking into consideration gender differences, underlying conditions, lifestyle, and causative factors for cognitive decline, which will significantly boost memory power. Therefore, this review recapitulates the possible causes of cognitive decline, the mechanism of polyphenols involving various signaling pathways in modulating the memory, gut dysbiosis, endogenous antioxidants, bioavailability, dosage, and safety efficacy of polyphenols. Hence, this review is expected to provide a basic understanding of therapeutic development for cognitive impairments in the future.

Wang, Y., C. Haskell-Ramsay, et al. (2023). "Effects of chronic consumption of specific fruit (berries, cherries and citrus) on cognitive health: a systematic review and meta-analysis of randomised controlled trials." European journal of clinical nutrition 77(1): 7-22. <https://dx.doi.org/10.1038/s41430-022-01138-x>

OBJECTIVES: The cognitive-protective effects related to the consumption of a variety of fruits are supported by several intervention studies. This systematic review and meta-analysis compared the magnitude of effects following chronic (≥ 1 week) consumption of frozen, freeze-dried powder including extracts and juices of fruits, covering berries, cherries and citrus, on cognition and mood in adults., METHODS: PubMed, Web of Science, Scopus, and psycARTICLES were searched from inception until February, 2021. Inclusion criteria were randomised controlled trials assessing memory, executive function, psychomotor speed, mood and mini mental state examination in adult participants ≥ 18 years of age. Cognition was tested by global or domain specific tasks., RESULTS: Out of 13,861 articles identified, 16 papers were included; 11 studies provided suitable data for meta-analysis. Fourteen studies reported improvement or trend for improvement in cognition, five studies assessed mood and one study supplementing grape juice found trend for mood improvement. From the meta-analysis, cherry juice supplementation was suggested to improve psychomotor speed by -0.37 of standardised mean difference (95% CI [-0.74, 0.01]) in reaction time ($P = 0.05$)., CONCLUSIONS: The meta-analysis did not sufficiently support a role for fruits or fruit forms to improve cognition and mood. Copyright © 2022. The Author(s).

Fu, J., L.-J. Tan, et al. (2022). "Association between the mediterranean diet and cognitive health among healthy adults: A systematic review and meta-analysis." *Frontiers in nutrition* 9: 946361. <https://dx.doi.org/10.3389/fnut.2022.946361>

Background: An increasing prevalence of cognitive disorders warrants comprehensive systematic reviews on the effect of diet on cognitive health. Studies have suggested that the Mediterranean (MeDi) diet has protective effects against metabolic diseases. However, comprehensive systematic reviews on the effect of the MeDi diet on the cognitive decline are limited. We investigated whether adherence to the MeDi diet could lower the risk of the cognitive disorder or improve cognitive function in older adults., Methods: In this systematic review and meta-analysis, PubMed, Web of Science, PsycINFO, Scopus, and Cochrane databases were searched from inception to June 2021. Cohort studies and randomized controlled trials (RCTs) were included. The effect sizes were estimated as log risk ratios and standard mean differences (SMDs) with 95% confidence intervals (CIs). The Newcastle-Ottawa score and Cochrane Collaboration's tool were used to assess the risk of bias in cohort studies and RCTs, respectively., Results: Of the 1,687 screened studies, 31 cohort studies and five RCTs met the eligibility criteria for qualitative analysis; 26 cohort studies and two RCTs were included in the meta-analysis. In the cohort studies, high adherence to the MeDi diet was associated with lower risk of mild cognitive impairment (MCI) [risk ratio (RR) = 0.75 (0.66-0.86)], and Alzheimer's disease (AD) [RR = 0.71 (0.56-0.89)]. In the RCTs, high adherence to the MeDi diet was associated with better episodic [SMD = 0.20 (0.09-0.30)] and working memories [SMD = 0.17 (0.01-0.32)] than lowest group., Conclusion: Adherence to the MeDi diet may reduce the risk of MCI and AD. However, other associations with cognitive outcomes (global cognition, working memory, and episodic memory) remain open to interpretation. Overall, the MeDi diet is recommended to prevent or delay cognitive disorders and improve cognitive function. Further, long-term RCTs are warranted to strengthen the evidence., Systematic review registration: [https://www.crd.york.ac.uk], identifier [CRD42021276801]. Copyright © 2022 Fu, Tan, Lee and Shin.

Davinelli, S., S. Ali, et al. (2021). "Carotenoids and Cognitive Outcomes: A Meta-Analysis of Randomized Intervention Trials." *Antioxidants* (Basel, Switzerland) 10(2). <https://dx.doi.org/10.3390/antiox10020223>

Recent evidence suggests that diet can modify the risk of future cognitive impairment and dementia. A biologically plausible rationale and initial clinical data indicate that the antioxidant activities of dietary carotenoids may assist the preservation of cognitive function. A meta-analysis of randomized controlled trials was conducted to examine the relationship between carotenoid supplementation and cognitive performance. A literature search was conducted in the MEDLINE (via PubMed), Scopus, Web of Science, and Cochrane databases from their inception to July 2020. A total of 435 studies were retrieved. Abstract screening using predefined inclusion and exclusion criteria was followed by full-text screening and data extraction of study characteristics and measured outcomes. A meta-analysis of eligible trials was performed using a random-effects model to estimate pooled effect size. We identified 9 studies with a total of 4402 nondemented subjects, whose age ranged from 45 to 78 years. Results of the pooled meta-analysis found a significant effect of carotenoid intervention on cognitive outcomes (Hedge's $g = 0.14$; 95% confidence interval: 0.08, 0.20, $p < 0.0001$). There was no evidence of heterogeneity among the studies ($\tau^2 = 0.00$, $I^2 = 0.00\%$, $H^2 = 1.00$) or publication bias. Although further studies are needed, our results suggest that carotenoid interventions are associated with better cognitive performance. Thus, these dietary compounds may help to reduce the risk of cognitive impairment and dementia.

Iguacel, I., I. Huybrechts, et al. (2021). "Vegetarianism and veganism compared with mental health and cognitive outcomes: a systematic review and meta-analysis." *Nutrition reviews* 79(4): 361-381. <https://dx.doi.org/10.1093/nutrit/nuaa030>

CONTEXT: Vegetarian and vegan diets are increasing in popularity. Although they provide beneficial health effects, they may also lead to nutritional deficiencies. Cognitive impairment and mental health disorders have a high economic burden., OBJECTIVE: A meta-analysis was conducted to examine the relationship between vegan or vegetarian diets and cognitive and mental health., DATA SOURCES: PubMed, Scopus, ScienceDirect, and Proquest databases were examined from inception to July 2018., STUDY SELECTION: Original observational or interventional human studies of vegan/vegetarian diets were selected independently by 2 authors., DATA EXTRACTION: Raw means and standard deviations were used as continuous outcomes, while numbers of events were used as categorical outcomes., RESULTS: Of 1249 publications identified, 13 were included, with 17 809 individuals in total. No significant association was found between diet and the continuous depression score, stress, well-being, or cognitive impairment. Vegans/vegetarians were at increased risk for depression (odds ratio = 2.142; 95%CI, 1.105-4.148) and had lower anxiety scores (mean difference = -0.847; 95%CI, -1.677 to -0.018). Heterogeneity was large, and thus subgroup analyses showed numerous differences. CONCLUSIONS: Vegan or vegetarian diets were related to a higher risk of depression and lower anxiety scores, but no differences for other outcomes were found. Subgroup analyses of anxiety showed a higher risk of anxiety, mainly in participants under 26 years of age and in studies with a higher quality. More studies with better overall quality are needed to make clear positive or negative associations. SYSTEMATIC REVIEW REGISTRATION: PROSPERO registration no. CRD42018097204. Copyright © The Author(s) 2020. Published by Oxford University Press on behalf of the International Life Sciences Institute. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.

Chen, X., B. Maguire, et al. (2019). "Dietary Patterns and Cognitive Health in Older Adults: A Systematic Review." *Journal of Alzheimer's disease : JAD* 67(2): 583-619. <https://dx.doi.org/10.3233/JAD-180468>

While the role of diet and nutrition in cognitive health and prevention of dementia in older adults has attracted much attention, the efficacy of different dietary patterns remains uncertain. Previous reviews have mainly focused on the Mediterranean diet, but either omitted other dietary patterns, lacked more recent studies, were based on cross-sectional studies, or combined older and younger populations. We followed PRISMA guidelines, and examined the efficacy of current research from randomized controlled trials and cohort studies on the effects of different dietary patterns. We reviewed the Mediterranean diet, Dietary Approach to Stop Hypertension (DASH) diet, the Mediterranean-DASH diet Intervention for Neurodegenerative Delay (MIND) diet, Anti-inflammatory diet, Healthy diet recommended by guidelines via dietary index, or Prudent healthy diets generated via statistical approaches, and their impact on cognitive health among older adults. Of 38 studies, the Mediterranean diet was the most investigated with evidence supporting protection against cognitive decline among older adults. Evidence from other dietary patterns such as the MIND, DASH, Anti-inflammatory, and Prudent healthy diets was more limited but showed promising results, especially for those at risk of cardiovascular disease. Overall, this review found positive effects of dietary patterns including the Mediterranean, DASH, MIND, and Anti-inflammatory diets on cognitive health outcomes in older adults. These dietary patterns are plant-based, rich in poly- and mono-unsaturated fatty acids with lower consumption of processed foods. Better understanding of the underlying mechanisms and effectiveness is needed to develop comprehensive and practical dietary recommendations against age-related cognitive decline among older adult.

Keefer, A., K. Steichele, et al. (2023). "Does Voluntary Work Contribute to Cognitive Performance? - An International Systematic Review." *Journal of multidisciplinary healthcare* 16: 1097-1109. <https://dx.doi.org/10.2147/JMDH.S404880>

Introduction: There is a need for knowledge on activities that can reduce cognitive decline and dementia risk. Volunteering is a productive activity that entails social, physical, and cognitive functions. Therefore, volunteering could be a protective factor for cognitive loss. Thus, this review aims to examine the associations between volunteering and volunteers' cognition and to identify influencing variables., Methods: Six international literature databases were searched for relevant articles published between 2017 and 2021 (ALOIS, CENTRAL, CINAL, Embase, PsycINFO, PubMed). Quantitative studies of all study designs were included. The primary outcome was the volunteers' cognition measured by objective, internationally established psychometric function tests. Two authors independently assessed the eligibility and quality of the studies. A narrative synthesis was performed using all studies included in this review. The methodology was in line with the PRISMA guidelines., Results: Fourteen studies met the inclusion criteria and were included. Seven of the included studies confirmed that volunteering positively affects the volunteers' cognitive function. Two other studies identified an association between volunteer activity and volunteers' cognition using cross-sectional measurements. In particular, women and people with a low level of education benefit from the positive effects and associations. The study quality of the included articles was moderate to weak., Discussion: Our review suggests that volunteering can improve volunteers' cognition. Unfortunately, little attention is given to specific volunteer activities and the frequency of engagement. Additionally, more attention is needed on various risk factors of cognitive impairment. Copyright © 2023 Keefer et al.

Li, J., M. V. McPhillips, et al. (2023). "Daytime Napping and Cognitive Health in Older Adults: A Systematic Review." *The journals of gerontology. Series A, Biological sciences and medical sciences* 78(10): 1853-1860. <https://dx.doi.org/10.1093/gerona/glac239>

BACKGROUND: Daytime napping may improve cognitive function in older adults. However, the association can be complicated by specific features of napping and the older adult's health. This systematic review aims to synthesize the current literature on napping and cognition in older adults and provide recommendations for future research and daytime sleep practice in older adults., METHODS: Systematic searches for relative research published between January 1995 and October 2022 were conducted at PubMed, MEDLINE, PsycINFO, and Google Scholar using keywords individually and in multiple combinations. Manual searches were performed to identify additional studies. All included studies were critically appraised by 2 authors., RESULTS: Thirty-five studies, including 23 observational and 12 intervention studies, were reviewed. Findings from observational studies suggest a possible inverted U-shaped association between napping duration and cognitive function: short and moderate duration of naps benefited cognitive health in older adults compared with both non-napping and long or extended napping. Findings from intervention studies suggest one session of afternoon napping might improve psychomotor function and working memory, although with some inconsistency. The effect of multiple nap sessions on cognition was inconclusive due to a limited number of studies., CONCLUSION: More rigorous research studies are needed to investigate what causes different patterns of daytime napping, the associations between these distinct patterns and cognitive function, and to determine whether interventions targeting napping patterns can improve cognition in older adults. In addition, future research needs to

comprehensively assess daytime napping using a combination of measures such as sleep diary and actigraphy. Copyright © The Author(s) 2022. Published by Oxford University Press on behalf of The Gerontological Society of America. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.

Chobe, S., M. Chobe, et al. (2020). "Impact of Yoga on cognition and mental health among elderly: A systematic review." Complementary therapies in medicine 52: 102421. <https://dx.doi.org/10.1016/j.ctim.2020.102421>

BACKGROUND: Cognitive decline and psychological health problems are the most frequently observed and under-treated issues among the elderly. Many studies have assessed the efficacy of Yoga on cognitive and mental health parameters among the elderly. However, up to date, there is no systematic review done to evaluate the role of Yoga-based interventions on cognition and mental health in the elderly., OBJECTIVE: This review evaluates the beneficial effect of Yoga in improving cognitive and mental health in the elderly., METHODOLOGY: A comprehensive search has performed on Medline, Google Scholar, PubMed, and PsycINFO electronic database from their inception to January 2019. The literature search was constructed around search term for "mental health", "cognition", "yoga" and "elderly". Out of 3388 records, we were considered only Randomized control trials (RCTs) with Yoga-based interventions on the older people for this review. Risk of bias was assessed using Delphi list and PEDro criteria., RESULTS: After filtering out irrelevant studies, in our search, we come across 13 RCTs, and they included in this systematic review. Of 13 RCTs, four studies assessed only cognitive parameters and five studies assessed only psychological parameters, and four studies evaluated both. Study quality was fair to moderate of included RCTs on the Delphi list and PEDro criteria. Maximum studied variables in cognition were executive functions, memory, attention, and language while in mental health depression, anxiety, stress, and mood. Yoga-based interventions have some beneficial effects on attention, executive functions among cognitive variables, and depression among mental health parameters among the elderly., CONCLUSION: The present review indicates that Yoga-based interventions have some positive evidence in improving attention, executive functions and memory of cognition, while depression in mental health compared to active control among the elderly. However, methodological limitations and small number of studies preclude confirming the potential benefits of Yoga-based interventions on cognition and mental health among the elderly. Further, this review strongly recommends more randomized control trials with standard study methodology, use of validated modules of Yoga intervention, and long term follow up to have definite conclusions. Copyright © 2020 Elsevier Ltd. All rights reserved.

Gaitan, J. M., E. A. Boots, et al. (2020). "Protocol of Aerobic Exercise and Cognitive Health (REACH): A Pilot Study." Journal of Alzheimer's disease reports 4(1): 107-121. <https://dx.doi.org/10.3233/ADR-200180>

A growing body of evidence supports that aerobic exercise can decrease the risk of future cognitive impairment and Alzheimer's disease (AD). There is a pressing need to rigorously determine whether cognitively normal yet at-risk individuals stand to benefit from the protective effects of exercise. The present study will test the feasibility of an aerobic exercise intervention in such a population and inform the design of a larger-scale randomized, controlled trial examining the effect of aerobic exercise on biomarkers of AD in late-middle-aged, at-risk individuals. This was a single-site, 1 : 1 block-randomized, parallel, two-arm trial. Cognitively normal participants aged 45-80 with documentation of familial and genetic AD risk factors were randomly assigned to one of two interventions. The Usual Physical Activity group was provided educational materials about exercise.

The Enhanced Physical Activity intervention delivered 26 weeks of individualized and supervised aerobic exercise. Exercise duration and intensity were incrementally increased to 150 min/week and 70-80% of heart rate reserve, respectively. Retention and adherence were measured to assess study feasibility. In addition, pre- and post- intervention differences between the two arms were evaluated for cardiorespiratory fitness, physical activity, brain glucose metabolism, cerebral structure, vascular health, memory, executive function, and mood. Data from randomized controlled trials of exercise training are needed to identify the proper exercise prescription for reducing accumulation of AD biomarkers in cognitively normal individuals. The current trial will contribute to filling that gap while informing the design of large-scale trials. Copyright © 2020 - IOS Press and the authors. All rights reserved.

Castells-Sanchez, A., F. Roig-Coll, et al. (2019). "Effects and Mechanisms of Cognitive, Aerobic Exercise, and Combined Training on Cognition, Health, and Brain Outcomes in Physically Inactive Older Adults: The Projecte Moviment Protocol." *Frontiers in aging neuroscience* 11: 216. <https://dx.doi.org/10.3389/fnagi.2019.00216>

INTRODUCTION: Age-related health, brain, and cognitive impairment is a great challenge in current society. Cognitive training, aerobic exercise and their combination have been shown to benefit health, brain, cognition and psychological status in healthy older adults. Inconsistent results across studies may be related to several variables. We need to better identify cognitive changes, individual variables that may predict the effect of these interventions, and changes in structural and functional brain outcomes as well as physiological molecular correlates that may be mediating these effects. Projecte Moviment is a multi-domain randomized trial examining the effect of these interventions applied 5 days per week for 3 months compared to a passive control group. The aim of this paper is to describe the sample, procedures and planned analyses., METHODS: One hundred and forty healthy physically inactive older adults will be randomly assigned to computerized cognitive training (CCT), aerobic exercise (AE), combined training (COMB), or a control group. The intervention consists of a 3 month home-based program 5 days per week in sessions of 45 min. Data from cognitive, physical, and psychological tests, cardiovascular risk factors, structural and functional brain scans, and blood samples will be obtained before and after the intervention., RESULTS: Effects of the interventions on cognitive outcomes will be described in intention-to-treat and per protocol analyses. We will also analyze potential genetic, demographic, brain, and physiological molecular correlates that may predict the effects of intervention, as well as the association between cognitive effects and changes in these variables using the per protocol sample., DISCUSSION: Projecte Moviment is a multi-domain intervention trial based on prior evidence that aims to understand the effects of CCT, AE, and COMB on cognitive and psychological outcomes compared to a passive control group, and to determine related biological correlates and predictors of the intervention effects. Clinical Trial Registration: www.ClinicalTrials.gov, identifier NCT03123900.

Predovan, D., A. Julien, et al. (2019). "Effects of Dancing on Cognition in Healthy Older Adults: a Systematic Review." *Journal of cognitive enhancement : towards the integration of theory and practice* 3(2): 161-167. <https://dx.doi.org/10.1007/s41465-018-0103-2>

A growing body of research emphasizes the benefits of physical activity and exercise over the lifespan and especially in elderly populations. However, few studies have evaluated the impact of dance as a physical activity or exercise on cognition in healthy older adults. This review investigated if dance could be used as a promising alternative intervention to address physical inactivity and to cognitively stimulate older adults. This systematic review reports the effects of dancing in a healthy older adult population based on intervention studies using the EMBASE, Web of Science, and Ovid

Medline databases. The Cochrane collaboration's tool for assessing risk of bias was used to assess each article quality. Seven out of 99 articles met the inclusion criteria, representing a total of 429 older adults (70% women), with a mean age of 73.17 years old. Dance interventions, lasting between 10 weeks and 18 months, were related to either the maintenance or improvement of cognitive performance. This systematic review suggests that dance as an intervention in the elderly could help improve or maintain cognition. This review outlines some of the possible mechanisms by which dance could positively impact cognition in older adults, addresses shortcomings in the existing literature, and proposes future research avenues. Copyright © The Author(s) 2018.

Gomes-Osman, J., D. F. Cabral, et al. (2018). "Exercise for cognitive brain health in aging: A systematic review for an evaluation of dose." *Neurology. Clinical practice* 8(3): 257-265. <https://dx.doi.org/10.1212/CPJ.000000000000460>

PURPOSE OF REVIEW: We systematically appraised randomized controlled trials proposing exercise to influence cognition in older adults to (1) assess the methodologic quality using Cochrane criteria; (2) describe various exercise dose measures and assess their relationship with improved cognitive performance; and (3) identify consistent patterns of reported effects on cognition., RECENT FINDINGS: There was overall good methodologic quality in all 98 included studies. The assessment of the relationship between improved cognition and various measures of exercise dose (session duration, weekly minutes, frequency, total weeks, and total hours) revealed a significant correlation with total hours. Improvements in global cognition, processing speed/attention, and executive function were most stable and consistent., SUMMARY: We found that exercising for at least 52 hours is associated with improved cognitive performance in older adults with and without cognitive impairment. Exercise modes supported by evidence are aerobic, resistance (strength) training, mind-body exercises, or combinations of these interventions.

SOCIALISATION

Joshi, P., K. Hendrie, et al. (2023). "Social connections as determinants of cognitive health and as targets for social interventions in persons with or at risk of Alzheimer's disease and related disorders: a scoping review." *International psychogeriatrics*: 1-27. <https://dx.doi.org/10.1017/S1041610223000923>

BACKGROUND: Social connections have a significant impact on health across age groups, including older adults. Loneliness and social isolation are known risk factors for Alzheimer's disease and related dementias (ADRD). Yet, we did not find a review focused on meta-analyses and systematic reviews of studies that had examined associations of social connections with cognitive decline and trials of technology-based and other social interventions to enhance social connections in people with ADRD., STUDY DESIGN: We conducted a scoping review of 11 meta-analyses and systematic reviews of social connections as possible determinants of cognitive decline in older adults with or at risk of developing ADRD. We also examined eight systematic reviews of technology-based and other social interventions in persons with ADRD., STUDY RESULTS: The strongest evidence for an association of social connections with lower risk of cognitive decline was related to social engagement and social activities. There was also evidence linking social network size to cognitive function or cognitive decline, but it was not consistently significant. A number of, though not all, studies reported a significant association of marital status with risk of ADRD. Surprisingly, evidence showing that social support reduces the risk of ADRD was weak. To varying degrees, technology-

based and other social interventions designed to reduce loneliness in people with ADRD improved social connections and activities as well as quality of life but had no significant impact on cognition. We discuss strengths and limitations of the studies included., CONCLUSIONS: Social engagement and social activities seem to be the most consistent components of social connections for improving cognitive health among individuals with or at risk for ADRD. Socially focused technology-based and other social interventions aid in improving social activities and connections and deserve more research.

Miura, K. W., S. Tokunaga, et al. (2023). "Effect of home-based group conversation intervention using smartphone application on cognitive health and psychological well-being of older adults with subjective cognitive concerns in Japan: a randomized controlled trial protocol." *Frontiers in psychology* 14: 1114790. <https://dx.doi.org/10.3389/fpsyg.2023.1114790>

Background: Social activity is a key component in the prevention of cognitive decline. However, face-to-face social intervention has limited accessibility. To address this issue, we developed the "Photo-Integrated Conversation Moderated by Application" (PICMOA), a home-based group conversation intervention using smartphones. This paper introduces the PICMOA intervention and the protocol of the ongoing randomized controlled trial (RCT), which aims to evaluate the effects of PICMOA on the cognitive functioning and psychological well-being of Japanese community dwelling older adults at the risk of cognitive function decline., Methods: This study uses an RCT design in two parallel group trials with 1:1 allocation. The participants are community dwelling older adults aged 65 years and above, living in an urban city in Japan, with subjective cognitive concerns. In total, 81 participants were allocated to the intervention or control groups. The intervention group receives 30 min of weekly PICMOA sessions at their home for 12 weeks. The PICMOA intervention consists of (1) a photo preparation period before the session and (2) a structured group conversation session talking about the photos that participants took according to a specific theme. The control group receives 30 min of weekly health education videos on a tablet device. The primary outcome is cognitive functioning at pre- and post-phases of the 12-week intervention measured using the Telephone Interview for Cognitive Status in Japanese, semantic and phonemic fluency tests, and the Digit Span Forward and Backward tests. The secondary outcomes are psychological and social aspects including mental status, well-being, loneliness, and social support., Discussion: Interest is growing in internet-based activities for preventing social isolation. However, the effect of remote conversation interventions on cognitive functioning remains unclear. This study addresses this issue and provides a new avenue of social participation for older adults., Clinical trial registration: <https://www.umin.ac.jp/ctr/>, identifier: UMIN000047247. Copyright © 2023 Miura, Tokunaga, Sekiguchi, Sugimoto and Otake-Matsuura.

Barbier, M., C. Schulte, et al. (2021). "Using social marketing for the promotion of cognitive health: a scoping review protocol." *BMJ open* 11(10): e049947. <https://dx.doi.org/10.1136/bmjopen-2021-049947>

INTRODUCTION: The use of social marketing strategies to induce the promotion of cognitive health has received little attention in research. The objective of this scoping review is twofold: (i) to identify the social marketing strategies that have been used in recent years to initiate and maintain health-promoting behaviour; (ii) to advance research in this area to inform policy and practice on how to best make use of these strategies to promote cognitive health., METHODS AND ANALYSIS: We will use the five-stage methodological framework of Arksey and O'Malley. Articles in English published since 2010 will be searched in electronic databases (the Cochrane Library, DoPHer, the International Bibliography of the Social Sciences, PsycInfo, PubMed, ScienceDirect, Scopus).

Quantitative and qualitative study designs as well as reviews will be considered. We will include those articles that report the design, implementation, outcomes and evaluation of programmes and interventions concerning social marketing and/or health promotion and/or promotion of cognitive health. Grey literature will not be searched. Two independent reviewers will assess in detail the abstracts and full text of selected citations against the inclusion criteria. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses flowchart for Scoping Reviews will be used to illustrate the process of article selection. We will use a data extraction form, present the results through narrative synthesis and discuss them in relation to the scoping review research questions., ETHICS AND DISSEMINATION: Ethics approval is not required for conducting this scoping review. The results of the review will be the first step to advance a conceptual framework, which contributes to the development of interventions targeting the promotion of cognitive health. The results will be published in a peer-reviewed scientific journal. They will also be disseminated to key stakeholders in the field of the promotion of cognitive health. Copyright © Author(s) (or their employer(s)) 2021. Re-use permitted under CC BY. Published by BMJ.

Krzeczkowska, A., D. M. Spalding, et al. (2021). "A systematic review of the impacts of intergenerational engagement on older adults' cognitive, social, and health outcomes." *Ageing research reviews* 71: 101400. <https://dx.doi.org/10.1016/j.arr.2021.101400>

BACKGROUND: Intergenerational engagement could benefit health and wellbeing within an ageing population. This systematic review evaluated the impacts of intergenerational engagement on cognitive, social, and health outcomes in healthy older adults and older adults with mild cognitive impairment., RESEARCH DESIGN AND METHODS: Comprehensive literature searches were undertaken, with records filtered according to pre-registered criteria. Study quality was formally assessed, and a narrative synthesis of the findings produced., RESULTS: Forty-four studies were reviewed. Regarding quantitative evidence, 4 out of 8 studies found significant intergenerational engagement effects on cognitive outcomes, 15 of 24 on social outcomes, and 21 of 31 on health-related outcomes. Qualitative evidence was also important for understanding perceived impacts and experiences of intergenerational programmes. Only 11 studies fully met criteria for high quality research, of which the majority focused on social outcomes., DISCUSSION AND IMPLICATIONS: There are a range of potential benefits of intergenerational engagement, most notably regarding anxiety, generativity, cross-age attitudes, and physical activity. However, heterogeneity in programme context, sample design, dosage, and duration indicate that more research is required to enable wider implementation and generalisability. Scientific rigour in both quantitative and qualitative research should also be employed as far as possible, to provide the highest quality evidence. Copyright © 2021 The Authors. Published by Elsevier B.V. All rights reserved.

Zhao, Y., B. Inder, et al. (2021). "Spousal bereavement and the cognitive health of older adults in the US: New insights on channels, single items, and subjective evidence." *Economics and human biology* 43: 101055. <https://dx.doi.org/10.1016/j.ehb.2021.101055>

This study provides novel insights into older adults' cognitive functioning before and after widowhood onset and possible effect channels. It further examines gender heterogeneity in the adaptation to (anticipated or actual) spousal bereavement, comparing objective evidence with subjective evidence of cognitive abilities. We used longitudinal data of up to 26,584 participants of the Health and Retirement Study, aged over 50 at recruitment, assessed biennially between 1998 and 2016. Two-way fixed effects with dynamic treatment effects were estimated for various cognitive measures, including six aggregated indices and six single item scales. After adjusting for effect channels including depression, social vulnerability, and stress, there remained significant

widowhood effects on older adults' cognitive health. Using single item scales, we established the adverse contemporaneous and adaptation effects on bereaved older females' short-term memory, semantic memory, and numeracy. For bereaved older males, working memory and focus-of-attention deteriorated after widowhood onset. Meanwhile, subjective memory rating remained intact, contrary to objective evidence. We conclude that cognitive transitions to and from widowhood can exhibit distinctive patterns across objective and subjective cognitive domains. With the effect channels in mind, cognitive intervention for widowed older adults should be tailored to the temporal distance to spousal loss, gender, and task. Copyright © 2021 The Authors. Published by Elsevier B.V. All rights reserved.