

**Background:** A great number of research studies has shown that high education has protective effects against dementia. However, such effects largely depend on how education is operationalized. In this study, we therefore compared various operationalization approaches of education and their impact on dementia risk based on data from a population-based study. **Methods:** Data were derived from the Leipzig longitudinal study of the aged (LEILA75+). We operationalized education according to different approaches used in previous studies and analyzed the impact on dementia incidence via multivariate cox regression modelling. **Results:** The results showed that whether education significantly protects against dementia strongly depends on the operationalization of education. Whereas the pure number of years of education showed statistically significant protective effects on dementia risk, other more complex categorical classification approaches did not. **Conclusions:** Findings suggest a protective effect of education on dementia risk particularly with regard to the number of years of education. The findings thus highlight that, when examining risks and protective factors of dementia, a careful consideration of the underlying definitions and operationalization approaches of such factors is required, which is also the utmost need for corresponding consensus research criteria.

**P1-249**      **EFFECTS OF CHRONIC ALCOHOL FEEDING ON LEARNING AND MEMORY IN MICE CARRYING RISK MUTATIONS FOR ALZHEIMER'S DISEASE**

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**Background:** This study was to determine the effects of chronic alcohol feeding on learning and memory in mice carrying susceptible genes of Alzheimer's disease (AD). **Methods:** Adult mice carrying mutation that forms apolipoprotein E4 (ApoE4) domain interaction (Arg61), or transgenic mice carrying human ApoE4/APP/PS1/Tau mutations (4-TG) were treated with alcohol (or control diet) for 8 weeks following NIAAA chronic alcohol feeding regimen, and compared with their age matched background controls. Radial arm water maze (RAWM), novel arm discrimination (NAD) were used to measure the spatial and working learning and memory. **Results:** Chronic alcohol feeding increases the latency and error of Arg-61 mice in RAWM, and these cognitive deficits were even worse in 4TG mice in comparison with their matched genetic background, and vehicle controls.

No significant difference was found in NAD test. **Conclusions:** Chronic alcohol use accelerates cognitive deficits in mice carrying risk mutations for AD.

**P1-250**      **FITNESS PREDICTS COGNITIVE PERFORMANCE IN URBAN LATIN AMERICANS**

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**Background:** A recent clinical trial by the KU ADC indicated that increasing fitness predicted better cognition in active healthy older adults. Maximizing an individual's cardiorespiratory fitness was the most important therapeutic target for achieving cognitive benefit. We use data from a satellite project in San Jose Costa Rica to examine the role of fitness on cognitive performance in urban dwelling Latin Americans. Low and middle income nations will experience an unprecedented growth of the elderly population and subsequent increase in age-related neurological disorders that requires effective strategies for promoting healthy brain aging and the prevention of Alzheimer's disease. **Methods:** By extending our standardized cognitive and physical fitness assessment batteries to a satellite site in Latin America, we implemented a comprehensive and empirically rigorous measurement strategy for the assessment of the environmental versus organismic determinants of healthy aging and dementia in Latin Americans. Primary cognitive outcomes were latent residual scores derived from a 16 subtest neuropsychological battery: Verbal Memory, Visuospatial Processing, Simple Attention, Set Maintenance and Shifting, and Reasoning. Physical fitness outcomes included the 6-minute walk time, a proxy of cardiorespiratory fitness and measures of function and disability. **Results:** Higher fitness (faster walk times) was significantly correlated with better Simple Attention and Visuospatial Processing abilities. Smoking history significantly attenuated the relationships observed among these variables. **Conclusions:** Consistent with a recent clinical trial completed by the KU ADC, healthy Costa Rican older adults who were more fit also had better visuospatial processing ability and better simple attention. Future clinical trials of exercise and exercise interventions should consider the moderating effect of cardiovascular fitness, smoking status, and potentially of other lifestyle variables to optimize the effects of exercise on cognition.