strongly and independently associated with risk of all-cause dementia. Our findings suggest that adherence to a healthy lifestyle can offset genetic risk and support engaging in healthy lifestyle interventions to prevent or delay dementia.

O3-05-02   **GENETIC RISK, LIFESTYLE AND DEMENTIA**

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Background: Genetic factors increase dementia risk, though whether this can be counteracted by adherence to healthy lifestyle is unknown. **Methods:** We used Cox proportional hazard models to estimate risk of all-cause dementia due to a combination of genetic and lifestyle factors in 157,369 UK Biobank participants of European ancestry aged 60 years or older at baseline. We constructed a polygenic risk score for dementia with low (lowest quintile), intermediate (quintiles 2 to 4) and high (highest quintile) categories. We also constructed a healthy lifestyle index including no current smoking, regular physical activity, healthy diet and moderate alcohol consumption with favorable (3 or 4 health behaviors), intermediate (2 health behaviors) and unfavorable (0 or 1 health behaviors) categories. Incident all-cause dementia was ascertained using hospital inpatient and death records. Models were adjusted for age, sex, education, socioeconomic status, 3rd degree relatedness of participants, the first 20 principal components of ancestry and the number of alleles included in the polygenic risk score. **Results:** We identified 668 cases of incident all-cause dementia over 938,418.7 person-years of follow-up (median follow-up of 6.0 years, interquartile range, 5.3 to 6.7). The risk of incident dementia was 60% higher among participants with a high genetic risk in comparison with those with a low genetic risk (hazard ratio [HR], 1.60; 95% confidence interval [CI], 1.25 to 2.05). Participants with a high genetic risk and an unfavorable lifestyle were more than three times more likely to develop dementia compared with those with a low genetic risk and favorable lifestyle (HR, 3.44; 95% CI, 2.28 to 5.18). Genetic factors did not significantly modify the relationship between the healthy lifestyle index and dementia risk. The risk of all-cause dementia was more than halved among participants with a high genetic risk following a favorable lifestyle compared with an unfavorable lifestyle (HR, 0.46; 95% CI, 0.32 to 0.68). **Conclusions:** Genetic and lifestyle factors are

O3-05-03   **THE RELATIONSHIP BETWEEN ADHERENCE TO AUSTRALIAN DIETARY GUIDELINES AND BRAIN HEALTH IN OLDER PEOPLE WITH AND WITHOUT TYPE 2 DIABETES**

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Background: Cognitive dysfunction is common in older people, particularly among those with type 2 diabetes (T2D). Dietary Guidelines are evidence-based recommendations to promote health and wellbeing. American Dietary Guidelines are based on the amount of energy intake; whereas, Australian Dietary Guidelines (ADG) have different serving sizes and are based on age groups. Higher adherence to Healthy Eating Index (American Dietary Guidelines) is associated with better cognition and brain structure. However, it is unknown if greater adherence to ADG is associated with lower cognitive dysfunction in people with and without T2D. The aims of this study were to 1) examine the relationship between adherence to ADG and both cognition and brain Magnetic Resonance Imaging (MRI); 2) determine whether T2D modifies any associations. **Methods:** The Cognition and Diabetes in Older Tasmanians study consisted of 689 people (n=343 T2D) aged 55-90 years. The 80-items Cancer Council Food Frequency Questionnaire was used to assess dietary intake. Neuropsychological tests and MRI were performed. A score was calculated to assess compliance with the 2013 ADG (max score 100, a higher score indicates greater compliance). General linear models were used to assess the associations between ADG scores and cognitive z-scores adjusted for age, sex, education, mood and vascular risk factors including T2D. An interaction term with T2D and ADG scores was tested in the model. **Results:** The mean age was 70.0 years (SD 7.4) with 42.8% males. The mean ADG score was 65.4 (SD 11.7) (range 24.1 to 95.0). No associations were observed between adherence to ADG and cognition or brain MRI measures. T2D did not modify any associations (p>0.05). **Conclusions:** This is the first study that investigates the association between adherence to ADG and brain health. Future studies with a prospective design are required to determine the long-term associations between adherence to ADG and brain health.

O3-05-04   **ASSOCIATIONS OF THE LIFESTYLE FOR BRAIN HEALTH (LIBRA) INDEX WITH STRUCTURAL BRAIN CHANGES AND COGNITION: RESULTS FROM THE MAASTRICHT STUDY**

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