

Concurrent Session 8: Diet and Cognition

The association of dairy consumption on the cognitive functioning and psychological well-being of middle-aged Australians

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Background – Diet and nutrition are thought to play a significant role in the prevention of age-related cognitive decline. Frequent cheese consumption has recently been reported to lower the risk of cognitive impairment in later life however a systematic investigation of the relationship between dairy intake, cognitive functioning and psychological health has not yet been done.

Objective – To examine associations between dairy intake and self-reported cognitive function and psychological well-being in middle-aged men and women.

Design – A retrospective cross-sectional analysis was undertaken with data from food frequency questionnaires and assessments of self-reported health, cognitive functioning and psychological well-being of 1183 South Australians. Associations between dairy intake and cognitive and psychological health were determined using regression analyses controlling for age and total energy intake where appropriate.

Outcomes – Small but significant associations were found between intakes of reduced fat cheese with greater social functioning in women ($P=0.03$), and between reduced fat yogurt with increased quality of recall in men ($P=0.02$). Dietary protein was associated with decreased stress in men ($P=0.02$). Intakes of whole fat ice-cream were associated with greater depression, stress, and anxiety in men, and cream intake was associated with poorer memory performance in women (all $P<0.05$). These associations were not apparent in those with a mental health disorder.

Conclusions – Preliminary data indicate that reduced fat dairy may have beneficial effects on social functioning, stress and memory, while whole fat dairy intake may have detrimental effects on psychological well-being. Prospective studies with assessment of diet and cognition at multiple time periods would enhance understanding of the possible association between dairy and cognitive functioning.

Associations between erythrocyte polyunsaturated fatty acids and cognitive assessments in children with ADHD and learning difficulties

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Background – Omega-3 (n-3) polyunsaturated fatty acid (PUFA) levels in plasma and erythrocytes are reportedly lower in children with attention deficit hyperactivity disorder (ADHD) than in controls.

Objective – To investigate relationships between erythrocyte PUFA, both n-3 and omega-6 (n-6), and the severity of learning and behaviour problems in this population.

Design – Seventy-six 7-12 year old children with ADHD and learning difficulties provided blood samples for assessment of erythrocyte PUFA levels (PUFA status) and underwent cognitive assessments.

Outcomes – Median erythrocyte contents of total n-3 and total n-6 PUFA were 6.7% and 24.5% of total fatty acids, respectively. Total n-6 PUFA levels were inversely associated with reading ($r=-0.24$ $P<0.05$), vocabulary ($r=-0.34$ $P<0.01$) and the ability to control and switch attention ($r=-0.38$ $P<0.01$). There were no overall associations between erythrocyte n-3 PUFA and cognitive assessments. However, in those with total n-3 PUFA levels at or below the median, the level of eicosapentaenoic acid (EPA) was significantly associated with reading ($r=0.52$ $P<0.01$), spelling ($r=0.41$ $P<0.05$) and vocabulary ($r=0.44$ $P<0.01$).

Conclusion – High n-6 PUFA status may be a contributing factor to inattention and literacy problems in children with ADHD and learning difficulties whereas, in children with low overall n-3 PUFA status, lower EPA is associated with poorer performance on these cognitive measures. Future research should investigate whether, in children with ADHD and learning difficulties, their initial n-6 or n-3 PUFA status will influence their response to PUFA supplementation.