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Factor analysis identifies a Mediterranean-style pattern of dietary intake that is protective against diabetic retinopathy

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Background - Factor (principal components) analysis of dietary intake identifies patterns of food consumption in populations, and may be a more useful (comprehensive and meaningful) approach to investigating a potential diet-disease link than conventional single nutrient analyses, particularly for diseases like diabetic retinopathy (the major cause of preventable blindness in the developed world) where there is no known specific relationship to diet.
Objective - To identify the patterns of food consumption that may protect against the onset of diabetic retinopathy.
Design - This cross-sectional study identified patterns of dietary intake in 407 men and women, mean age 64 years, about half with Type 2 diabetes and equally divided between Greek-born and Australian-born. Factor analysis, a data reduction technique, generated variables representing patterns of dietary intake from a list of the 121 foods in the food frequency questionnaire, administered at the clinical data-collection visit. Retinopathy was photo-documented and graded according to a validated protocol by one assessor, masked to other participant data.
Outcomes - Of the identified 9 patterns of dietary intake, one pattern of food consumption was inversely associated with prevalent diabetic retinopathy, after adjusting for established retinopathy risk factors and confounders of dietary intake. This 'Very Greek" pattern of food intake correlated positively with the intake of, in order of importance, onions/leeks, olive oil, garlic, and feta cheese, and inversely with cream/ butter/margarine, and was also inversely associated with prevalent hypertriglyceridemia and hyperhomocysteinemia.
Conclusions - Factor analysis identified a "Very Greek" Mediterranean-style pattern of dietary intake that was protective against diabetic retinopathy and may also be cardio-protective.

Effect of a nutritional intervention on cognitive performance in primary school aged children in Australia and Indonesia

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Background - Adequate nutrition has been linked to cognitive performance in a number of studies, particularly in infancy and preschool children, but there is limited data for primary school-aged children whose cognitive functions continue to develop as the brain continues to grow.
Objective - To investigate links between nutrition and cognition in 6-10 year-old Australian and Indonesian primary school children participating in a longitudinal supplementation study, who are either apparently well-nourished or at risk of undernutrition.
Design - Approximately 400 children from each country took part in a four arm intervention study comprising a placebo arm and three supplement intervention arms: one with B vitamins, iron and zinc at about 1RDA per day, one with omega 3 fats and the third a combination of these two. Measures of attention and concentration, speed of information processing, memory, executive function, verbal ability and school achievement were obtained at baseline, 6 and 12 months, blood measures for iron, zinc, folate, B12 and plasma lipids at baseline and 12 months.
Outcomes - At baseline, associations between nutrient status and cognitive performance varied between country, gender and cognitive measures. Correlations, adjusting for age, indicated consistent, though weak, significant relationships between iron status and cognitive performance for both Australia and Indonesia, and to a lesser extent, between cognitive performance and zinc status for Australia and folate and omega fatty acid status for Indonesia. After 12 months of supplementation effects were seen for the vitamin/mineral interventions.
Conclusions - In cross-sectional analysis there are some weak but significant associations between iron status and cognitive performance in both apparently adequately and marginally nourished school-age children. Low level supplementation over one year suggests that the mineral/vitamin supplementation could benefit some children.

**On behalf of the NEMO project team (Nutrition Enhancement for Mental Optimization) comprising: K. Baghurst, J. Bryan, E. Calvaresi, D. Hughes, M. Hussaini, E. Karyadi, J-W van Klinken, H. van der Knaap, W. Lukito, H. Mikarsa, S. Osendarp, C. Transler, and C. Wilson.*