

Concurrent Session 11: "Brain food" and School Nutrition

Short-term effects of a very low carbohydrate diet compared to a high carbohydrate, low fat diet on mood and cognitive function

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Background - Very low carbohydrate diets are often used to promote weight loss, but their effects on psychological function are largely unknown.

Objective - We investigated the short-term effects of a very low carbohydrate diet (LC) and a conventional high carbohydrate, low fat diet (HC) on mood and cognitive function in obese men and women.

Design - 92 subjects (mean±SE, age: 50.4 ± 0.8; BMI 33.6±0.4 kg/m²) were randomly assigned to either an energy restricted (~6-7 MJ, 30% deficit), planned isocaloric LC or HC with mixed carbohydrate sources (age: 49.8±1.3 yrs; BMI 33.8±0.6) for 8 weeks. Body weight and psychological well-being (Profile of Mood States, Beck Depression Inventory and Spielberger State Anxiety Inventory) were measured at baseline and fortnightly. Cognitive functioning (working memory and speed of processing) was assessed at baseline and Week 8.

Outcomes - LC resulted in significantly greater weight loss compared to HC (LC 7.7 ± 0.4 kg, HC 6.4 ± 0.4kg, *P* = 0.03). Both groups demonstrated improvements in psychological well-being during the 8-week treatment period (*P*<0.01 for time), with the greatest effect occurring after 2 weeks, but the improvements were not different between groups. There were no between-group differences for working memory (*P*=0.68), but there was a significant time x diet interaction for speed of processing (*P*=0.04), such that this measure improved to a greater extent in HC compared with LC.

Conclusion - Both dietary patterns significantly reduced body weight and were associated with improvements in mood. There was some evidence for a greater relative improvement in cognitive functioning in HC for speed of processing, but further studies are required to determine the replicability of this finding.

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Dietary habits of people with and without schizophrenia: relationship to stress

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Background – Dietary fatty acids can affect our health and wellbeing. Studies have shown that the essential fatty acids alpha-linolenic acid (LNA) and linoleic acid (LA) have an impact on the symptoms of schizophrenia patients.

Objective - To compare the fatty acid composition in diets of individuals with schizophrenia and healthy individuals by using a validated polyunsaturated fatty acid questionnaire and to determine if there is a relationship between diet and stress.

Design – A case control observational study of 44 individuals with schizophrenia and 56 healthy individuals. Subjects were recruited via community centres, hospitals, mental health clinics, the university campus and a schizophrenia research register. All 100 subjects completed the PUFA questionnaire and 83 subjects were assessed for stress using the Depression Anxiety and Stress Scales.

Outcomes – There were no significant differences in total, saturated, monounsaturated and polyunsaturated fat, LA, arachidonic acid, EPA and DHA intakes. The individuals with schizophrenia did consume 30% higher intakes of LNA intake and more total fat. The intakes of LNA and LA varied greatly and each of these intakes accounted for 47% and 46% of the intake of the other (respectively). Both LA and LNA were significantly correlated with stress levels (partial *r*=0.43 and -0.33, respectively, both *P* <0.005), and LA and LNA accounted for 19% of the variation in stress scores. The correlations were significant in the schizophrenia (*n*=43, *P*<0.02) and control (*n*=40, *P* <0.05) groups individually.

Conclusion – The quality of dietary fat is related to stress in individuals, including those with a diagnosis of schizophrenia.