

Conclusions: Weight loss was the primary driver of MetS resolution regardless of protein source or amount. These data suggest that heart-healthy dietary patterns that emphasize animal or plant protein improve criteria for MetS when SFA is controlled.

Funding source(s): National Cattleman's Beef Association.

EFFECTIVENESS OF A MEDITERRANEAN DIET INTERVENTION FOR IMPROVING FOOD INTAKE IN PEOPLE WITH SERIOUS MENTAL ILLNESS

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Background/Aims: People with serious mental illness die 25–30 year sooner than the general population due largely to cardiovascular disease. Lifestyle is a major contributor, including poor diet. Mediterranean-style diets, characterised by high consumption of vegetables, nuts, legumes, olive oil and fish, have been associated with better cardiovascular and mental health. The aim of this study was to evaluate the effectiveness of a Mediterranean diet-based intervention for improving diet in people with serious mental illness.

Methods: A three month pilot feasibility study of the HELFIMED dietary intervention was conducted with 23 residents in a community rehabilitation centre in South Australia. Participants received nutrition education, food hampers, cooking workshops and shopping support based on Mediterranean diet principles. At three months, 20 semi-structured interviews were conducted with participants and support staff to evaluate the intervention. Interviews were transcribed and independently coded for key themes by two researchers.

Results: The framework thematic analysis revealed improvements in participants' knowledge of and intake of the key elements of Mediterranean diet (fruit and vegetables, olive oil, fish, legumes), reduction in poor nutrition habits (soft drinks, energy drinks, take away meals), as well as the development of independent living skills, including culinary skills such as food preparation and cooking of simple recipes, food shopping and budgeting, healthy meal planning, and social interaction.

Conclusions: A Mediterranean diet-based intervention conducted in a community setting is feasible and achieved positive change in dietary behaviours associated with CVD prevention for participants with serious mental illnesses.

Funding source(s): NHMRC.

THE DIETARY PREDICTORS OF PULSE WAVE VELOCITY IN A COHORT WITH DIABETES

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Background/Aims: Diabetes is associated with a higher risk of CVD and diet is a modifiable risk factor. However, few studies have examined the association between dietary intake and arterial stiffness, a well-established predictor of CVD, in people with diabetes. The aim was to investigate the relationship between dietary intake and pulse wave velocity (PWV) in a cohort of people with type 1 and type 2 diabetes.

Methods: Participants were adults with type 1 ($n = 8$) or type 2 diabetes ($n = 87$) who completed the Dietary Questionnaire for Epidemiological Studies version 2 food frequency questionnaire and had carotid-femoral PWV measured using a SphygmoCor[®] XCEL (Sydney, Australia). Dietary data was analysed in grams per MJ. Data was analysed using linear regression after adjustment for predictors of PWV

Results: After multivariate adjustment there was a negative association between total dairy intake and PWV ($\beta = -0.011$; $t = -2.1$; $p = 0.038$). Further analysis showed that only reduced fat dairy was inversely associated with PWV ($\beta = -0.01$; $t = -2.2$; $p = 0.031$), and no association was evident for full fat dairy. When the different types of reduced fat dairy were investigated only yoghurt was associated with PWV ($\beta = -0.05$; $t =$

2.3 ; $p = 0.026$). An inverse association existed between vegetable intake and PWV ($\beta = -0.04$; $t = -2.7$; $p = 0.009$).

Conclusions: Greater consumption of reduced fat dairy and vegetables is associated with less arterial stiffening in a cohort of people with diabetes.

Funding source(s): University of South Australia.

PALMOLEIN AND OLIVE OIL CONSUMED AS PART OF HIGH PROTEIN TEST MEALS DO NOT IMPAIR POSTPRANDIAL ENDOTHELIAL FUNCTION

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Background/Aims: Postprandial hyperlipidaemia following high fat meals impair endothelial function. However, effects of different fat types are inconsistent and may be due to other meal components such as protein sources rich in L-arginine, a potent vasodilator. This study assessed the postprandial effects of high fat, high protein meals containing either palmolein or olive oil on endothelial function in overweight/obese men.

Methods: Men ($n = 28$; aged 32–65 years; BMI 25–35 kg/m²) consumed, in random order 1 week apart, isocaloric high protein, high fat meals (30%E protein, ~3 g L-arginine, 58%E fat) prepared with either 40 g palmolein or 40 g olive oil after an overnight fast. Brachial artery flow-mediated dilation (FMD), circulating endothelial function markers, nitrotyrosine (oxidative stress marker), TAG, glucose and insulin were assessed pre-meal and hourly for 5 hours. Mixed model procedures were used to analyse data.

Results: Meal consumption increased serum TAG (time effect, $p < 0.001$) with no meal differences (meal \times time interaction, $p = 0.93$). FMD, serum intercellular adhesion molecule-1 (ICAM-1) and E-selectin were unaffected (meal \times time effect, $p = 0.4$). Olive oil transiently increased plasma nitrotyrosine after 1 hour compared to palmolein (meal \times time interaction, $p = 0.002$) whereas both meals increased serum vascular cell adhesion molecule-1 (VCAM-1) after 1 hour (time effect, $p < 0.001$; meal \times time interaction, $p = 0.98$). Both nitrotyrosine and VCAM-1 returned to pre-meal concentrations after 2 h.

Conclusions: In the context of high protein/high L-arginine meals, palmolein similarly to olive oil did not impair postprandial endothelial function in overweight/obese men.

Funding source(s): Malaysian Palm Oil Board.

LONG-TERM CONSUMPTION OF A LOW CARBOHYDRATE, LOW SATURATED FAT DIET IMPROVES TYPE 2 DIABETES MANAGEMENT

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Background/Aims: Few well-controlled studies have examined the long-term effects of very low carbohydrate (LC) diets for type 2 diabetes (T2DM) management.

Methods: Subjects with T2DM ($n = 115$, mean \pm SD BMI 34.6 \pm 0.4 kg/m², age 58 \pm 1 years; HbA1c 7.3 \pm 0.1%) were randomised to consume a hypocaloric, very low carbohydrate diet [LC: 14% energy as carbohydrate (< 50 g/day), 28% protein, 58% fat (< 10% saturated fat)] or an isocaloric high carbohydrate, low fat diet [HC: 53% carbohydrate, 17% protein, 30% fat (< 10% saturated fat)] combined with structured exercise (3 days/week) for 52 weeks. Data were analysed using random effects, linear mixed models

Results: Both groups achieved similar completion rates (LC vs. HC 71%, 65%), reductions in weight (-9.8 \pm 1.0, -10.1 \pm 1.0 kg), fat mass (-7.9 \pm 0.9, -8.6 \pm 0.9 kg), blood pressure (-7.1/-6.2 \pm 1.7/1.0, -5.8/-6.4 \pm 1.8/1.0 mmHg), HbA1c (-1.0 \pm 0.1, -1.0 \pm 0.1%), fasting glucose (-0.7 \pm 0.3, -1.5 \pm 0.3 mmol/L) and LDL-C (-0.1 \pm 0.1, -0.2 \pm 0.1 mmol/L); no diet effect ($p = 0.09$). Compared to HC, LC achieved greater reductions in diabetes medication requirements (-0.6 \pm 0.1, -0.2 \pm 0.1; $p = 0.02$ time \times diet), glycaemic variability including Mean Amplitude of Glucose Excursion (-1.7 \pm 0.3, -0.8 \pm 0.3 mmol/L), Continuous Overall Net Glycemic Action-1 (-0.5 \pm 0.1, -0.05 \pm 0.1 mmol/L) and SD_{Glucose} (-0.7 \pm 0.1, -0.4 \pm 0.1 mmol/L; $p = 0.003$ –0.09)

time \times diet), TAG (-0.4 ± 0.1 , -0.01 ± 0.1 mmol/L; $p = 0.001$ time \times diet) and increases in HDL-C (0.1 ± 0.03 , 0.06 ± 0.04 mmol/L; $p = 0.002$ time \times diet). **Conclusions:** Both LC and HC diets achieved substantial weight loss, improvements in HbA1c and fasting glucose. The LC yielded greater improvements in lipid profile, diurnal blood glucose stability and reductions in diabetes medication requirements, suggesting LC are advantageous for T2DM management.

Funding source(s): NHMRC.

Concurrent session 9: policy and dietary guidelines

NUTRADITIONS: DOES A TRADITIONAL WORIMI DIET ACHIEVE THE CURRENT AUSTRALIAN DIETARY GUIDELINES?

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Background/Aims: To achieve health equality for Aboriginal Australians, novel health change strategies are required and need to be based on respect for connection to country, tradition and culture. Nutraditions aims to determine whether the ADG can be achieved with an eating pattern that is nutritionally equivalent to a traditional Aboriginal diet. This dietary approach has the potential to reduce the risk of diet-related chronic disease in Worimi and Biripi Nations.

Methods: Using a participatory action research methodology, extensive community consultation preceded a comprehensive literature review. To date, 21 individual in-depth interviews with elders and eight community focus groups have been conducted to gather information about traditional Worimi and Biripi diets. Qualitative data was analysed thematically. Quantitative analysis of dietary information was conducted prior to diet modelling, nutrient analysis and nutritional equivalence testing using FoodWorks.

Results: The ADG can be achieved using traditional Aboriginal foods and eating patterns. Availability and acceptability of traditional foods is limited, so contemporary alternatives for bush foods were identified. Individual contemporary foods rarely matched traditional foods due to the low saturated fat content and high nutrient density of traditional foods. Food combinations can be used to achieve required nutritional equivalence in simulated "Worimi diet" meal plans.

Conclusions: The feasibility of implementing Nutraditions at an individual or community level requires further community consultation to determine preferred resources and delivery mode. The potential for application of Nutraditions in other Aboriginal communities and as a dietary approach for non-Aboriginal people will be discussed.

Funding source(s): Hunter Medical Local.

DIETARY PATTERNS OF OLDER ADULTS: A COMPARISON OF METHODS

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Background/Aims: Despite increasing application of dietary pattern methods in nutritional epidemiology, few studies directly compare approaches. This study aimed to compare the dietary patterns of older adults using two empirical-based methods: principal component analysis (PCA) and cluster analysis (CA).

Methods: Participants ($n = 3,959$, 55–65 years, 48% men) completed a postal survey including a 111-item food frequency questionnaire. Food items were categorised into 52 groups and entered into PCA and CA, stratified by sex. Factor scores were calculated for PCA-derived dietary patterns, standardised and compared across clusters using ANOVA and bonferroni post-hoc test. $P < 0.05$ was considered significant.

Results: PCA identified four patterns in men and two patterns in women. CA identified three patterns in both sexes. Men in the 'fruit, vegetable and white

meat' cluster had higher scores on the 'fruit, vegetable dishes and white meat' and 'vegetables' PCA patterns compared to the 'red and processed meat, white bread and high-sugar products' and 'spreads, biscuits, cake and confectionary' patterns, mean (95% CI): 0.92 (0.82, 1.02) vs. 0.74 (0.63, 0.84) vs. -0.43 (-0.50, -0.35) vs. 0.60 (0.46, 0.74), respectively. Women in the 'fruit, vegetable, nuts and fish' cluster scored highest on the 'vegetable, fruit and fish' PCA pattern compared to the 'red and processed meat, white bread, and high-sugar products' PCA pattern, 1.05 (0.97, 1.14) vs. -0.14 (-0.21, -0.07), respectively.

Conclusions: PCA and CA identified similar dietary patterns in older adults. Comparison of methods in the same population will assist with interpretation across studies.

Funding source(s): ARC; Diabetes Australia Research Trust.

AUSTRALIANS ACTIVELY AVOIDING CORE GRAIN FOODS

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Background/Aims: The 2013 ADG recommend six serves of grain foods per day. The aim was to determine core grain intake by Australians and the barriers preventing people from meeting recommendations.

Methods: A two-day food record was completed by a sample of 2,247 subjects aged 15 – 70 years (35% males), and stratified based on Census data. Participants completed a closed-ended questionnaire relating to intake and attitudes to grain foods. Grain serves were based on 2013 ADG. Data were compared to the same survey conducted in 2011.

Results: The average intake of core grain foods was 3.9 serves per day, 3.5 for women. There has been a significant reduction in core grain food intake in women since the last survey in 2011 (10%; $p < 0.05$). Of total respondents, 60% reported actively limiting grain foods. The most common reasons for not meeting recommendations were to assist weight loss (16%) and linking grains with bloating (16%). Prompted with serve size information, the average estimate of the recommended serves per day was 2.4, while 32% responded the recommended number of serves of core grain foods per day was 'too many'.

Conclusions: The results indicate Australians are falling well short of recommendations and are actively choosing to avoid core grain foods. Clarity on the role of grains in weight management and bloating is needed as well as strong communication on the recommended number of serves and the benefits of grains to support the ADG.

Funding source(s): Grains & Legumes Nutrition Council.

RELIABILITY AND VALIDITY OF A FOOD FREQUENCY QUESTIONNAIRE WITH SIX-MONTH TO SIX-YEAR-OLD CHILDREN

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Background/Aims: Understanding children's dietary patterns is an important factor in planning interventions to improve child health. The aim of this study was to determine the reliability and validity of a parent-reported food frequency questionnaire (FFQ), to assess dietary intake of children in a birth cohort study.

Methods: Twenty-nine parents of children aged six months to six years completed three face-to-face interviews, each approximately 12 days apart. A 40 item FFQ and a triple-pass 24 hour recall were completed at each session. Intra-rater reliability of the FFQ was determined using weighted kappa (K_w) coefficients to compare sessions one and two. Twenty-four hour recall data were categorised according to the response categories of the FFQ. To determine concurrent validity, mean frequency of items over three days were compared to responses from the first FFQ using one-way ANOVA with a test for linearity.

Results: K_w values for foods ranged between 0.43 (desserts) and 0.96 (peanut butter) and for beverages, between 0.73 (soft drink) and 1.0 (low fat milk), with the exceptions of fresh fruit (0.23) and water (0.38). Mean