

counselling from a dietitian at baseline, 1, 3, 6 and 9 months.

**Results:** One hundred and eighteen participants completed the study. Vegetable (46 g/day; 95% CI 14, 77;  $p < 0.001$ ) and fruit (179 g/day; 95% CI 119, 239;  $p < 0.001$ ) intake were increased at 3 months in the intervention group, compared to the control group. At 12 months CCA-IMT regressed ( $-0.01 \pm 0.04$  mm;  $p < 0.001$ ) with a greater effect in the treatment group ( $-0.02 \pm 0.04$  mm vs.  $-0.004 \pm 0.04$  mm;  $p = 0.009$ ). There was a time by treatment effect for peripheral diastolic blood pressure ( $p < 0.05$ ) but no effect existed for central blood pressure, AI or PWV.

**Conclusions:** Improving dietary quality in people with type 1 and type 2 may slow CCA-IMT progression.

**Funding source(s):** University of South Australia.

#### EFFECT OF FRUCTOSE ON MEAL TRIGLYCERIDE RESPONSE

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**Background/Aims:** Fructose, a nutritive sweetener, has been shown to elevate TGs compared to a glucose control. There is limited data on fructose in a mixed meal. The aim of this study was to determine the effects of sucrose, fructose and sucralose on triglyceride, glucose and insulin response in an acute study in healthy individuals.

**Methods:** A randomised cross-over study was conducted, and 27 participants with a median age of 40, and a BMI of 26.3 kg/m<sup>2</sup> completed the study. Fructose (52 g), sucrose (65 g) and Sucralose (6 g of Splenda) were delivered as sweet taste balanced -muffins with a standardised fat load (66 g). Blood samples were taken at baseline and every 30 minutes for 4 hours. Glucose, triglyceride and insulin concentrations over time, AUC and iAUC were analysed.

**Results:** No significant difference was found between the three sweeteners for triglyceride and glucose concentration, AUC and iAUC. A significant difference was found for insulin treatment ( $p = 0.001$ ), time<sup>2</sup> treatment ( $p = 0.035$ ), AUC ( $p = 0.000$ ) and iAUC ( $p = 0.000$ ). Fructose had a significantly lower response than sucrose ( $p = 0.006$ ) and sucralose ( $p = 0.041$ ).

**Conclusions:** Fructose at a moderate dose did not significantly elevate triglycerides in comparison to sucrose or sucralose. No significant difference in the glycaemic response between the meals was found. These results indicate that these sweeteners can be safely interchanged for normal meals. Fructose showed a lower insulin response which may be beneficial long-term in those at risk of type 2 diabetes.

**Funding source(s):** N/A.

#### DIETARY GLYCAEMIC INDEX AND GLYCAEMIC LOAD AMONG AUSTRALIANS

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**Background/Aims:** There is no recent published data on the dietary glycaemic index (dGI) or glycaemic load (dGL) of Australian adults, nor comparison of the patterns between adults and children. This study aims to identify these and determine the major food groups contributing to dGL, using the latest Australian Health Survey.

**Methods:** Food intake data from 8202 individuals (52.2% male), aged 0–95y, were analysed. The glycaemic index of foods was assigned based on a published method, and dGL was calculated. Glycaemic load contributed by food groups were described by age and sex.

**Results:** The mean (SD) dGI and dGL of participants were 54 (5.9) and 132 (49.2) respectively. The main contributors to dGL were breads, cereal-based dishes, breakfast cereals, flours and grains, potatoes, soft drinks, sweeteners, cakes and fruit juices. Males had higher percentage dGL from starchy foods and soft drinks, whilst females had higher dGL from sweet and starchy foods such as cakes, sweet biscuits and chocolate. Per capita, energy-dense nutrient-poor foods contributed almost a quarter of dGL.

**Conclusions:** Less than 10% of participants were meeting the

recommended dGI of 45. Efforts to target reduction in dGI and dGL of all Australians should concentrate on reducing consumption of energy-dense, starchy foods, or improving their quality.

**Funding source(s):** N/A.

#### IMPROVED DIET QUALITY AND BODY WEIGHT IN MEN AFTER PARTICIPATING IN THE PULSE T2DM PREVENTION RANDOMISED CONTROLLED TRIAL

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**Background/Aims:** T2DM prevention programs have reduced incidence by up to 58%. However, programs have been intensive and costly. The aim was to evaluate efficacy of a self-administered, gender-tailored T2DM prevention program (Prevention Using LifeStyle Education; PULSE) for men only.

**Methods:** A 6-month assessor-blinded, randomised controlled trial. Eligible men were 18–65 years, BMI 25–40 kg/m<sup>2</sup> and at high T2DM risk (Australian Risk Assessment Tool). Men were randomised to intervention ( $n = 53$ ) or wait-list control ( $n = 48$ ) groups. PULSE included print and video resources on weight loss (SHED-IT Weight Loss Program), evidence-based diet and a home-based unsupervised aerobic exercise and resistance training program. Six-month outcome measures included weight, HbA<sub>1c</sub>, fitness, diet quality (Australian Recommended Food Score (ARFS)) and food and nutrient intakes (Australian Eating Survey). Generalised linear mixed models (intention-to-treat) evaluated group-by-time interactions.

**Results:** At baseline (mean  $\pm$  SD) men were 52.3  $\pm$  9.7 years, 103.0  $\pm$  13.1 kg and HbA<sub>1c</sub> 5.8  $\pm$  0.5%. Group-by-time differences at 6-months [mean (95% CI)] favoured the intervention for weight [-5.50 kg (-7.40, -3.61),  $p < 0.001$ ], HbA<sub>1c</sub> [-0.2% (-0.3, -0.1),  $p = 0.002$ ], diet quality [ARFS 4.4 (1.5, 7.4),  $p = 0.004$ ], % energy (E%) from core foods [7.6% (3.8, 11.3),  $p < 0.001$ ], E% fruit [2.3% (0.4, 4.3),  $p = 0.020$ ] compared to controls. Total energy intake [-1285 kJ/day (-2734, 165),  $p = 0.08$ ] and E% vegetables [0.8% (-0.9, 2.6),  $p = 0.35$ ] did not differ between groups despite significant intervention group improvements.

**Conclusions:** This study demonstrates efficacy of a self-administered, gender-tailored lifestyle intervention on reducing T2DM risk factors in men. Future research should evaluate cost-effectiveness.

**Funding source(s):** Hunter Medical Research Institute.

#### SEX-DEPENDENT RELATIONSHIP BETWEEN N-3 LONG-CHAIN POLYUNSATURATED FATTY ACIDS AND INSULIN RESISTANCE: A SYSTEMATIC REVIEW

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**Background/Aims:** Previous research has shown an inverse relationship between long-chain n-3 polyunsaturated fatty acids (n3PUFA) and insulin resistance (IR), however, intervention trials have generated equivocal results. Previous findings by our research group suggest that the relationship may be sex-dependent, potentially accounting for inconsistencies in the literature. The aim of this systematic review and meta-analysis is to determine whether the responsiveness to n3PUFA interventions for type 2 diabetes prevention is sex-dependent.

**Methods:** Five databases (Medline, EMBASE, CINAHL, Scopus and PubMed) were searched to identify randomized controlled trials that include: dietary or supplement n3PUFA intervention in adult populations; measures of IR; and a report of the relationship between the two. Subgroup analysis was used to explore sex-dependent differences.

**Results:** Thirty-two trials matched the inclusion criteria, including a total of 2326 participants (mean age 53.4 yrs; BMI 29.7). Five trials were conducted in males only; seven in females and the rest ( $n = 20$ ) were