

magnesium intake and daytime sleepiness nor night snoring in either gender.

**Conclusions:** Dietary magnesium intake may have a long term benefits in reducing the likelihood of daytime falling asleep in women.

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

#### P84

### VENOUS LEG ULCERS AND EFFECTS OF NURITION AND NUTRITIONAL STATUS: A SYSTEMATIC REVIEW

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**Background/Aims:** Venous leg ulcers (VLU) are the most prevalent lower limb ulcer, however there is little evidence regarding the effect of nutritional status on healing. This systematic review aimed to determine nutritional characteristics of patients with VLUs and effect of nutrition interventions on VLU outcomes.

**Methods:** Five databases were searched from January 2004 to November 2015 for studies involving adults with VLUs measuring nutritional interventions or characteristics using Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

**Results:** Of 4542 articles, 16 were included in the review. These included cohort, cross-sectional, case-control and quasi-experimental studies. All participants had C5 or C6 (CEAP classification) ulcers in a range of settings with relatively small sample sizes. Included studies reported a range of wound outcomes. The majority of VLU patients were found to be overweight or obese, which was also identified as a factor for delayed wound healing. Vitamin D and folic acid reported some effect on healing. Dietary intake of omega-3, vitamin C and zinc was low for some patients. Most patients consumed adequate protein. The effect of malnutrition on prevalence and recurrence of VLUs had conflicting Results.

**Conclusions:** The current evidence suggests VLU patients are more likely to be overweight or obese. There is low-level evidence that vitamin C, vitamin D and zinc improve healing and being underweight may increase VLU recurrence risk. The available evidence is low quality due to the risk of bias and small sample sizes in the included studies. Further high quality studies are required.

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

#### P85

### ASSOCIATIONS BETWEEN DIETARY PATTERNS AND DEPRESSIVE SYMPTOMS IN OLDER ADULTS

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**Background/Aims:** Although several studies have examined associations between dietary patterns and depressive symptoms, few have examined these associations in older adults. This study examines associations between past (2010) and current (2014) dietary patterns and depressive symptoms in community dwelling men and women.

**Methods:** Adults aged 55 years and over ( $n = 4082$ , 49% men) were recruited into the Wellbeing, Eating and Exercise for a Long Life (WELL) study in Victoria, Australia. Dietary intake was assessed in 2010 and 2014 by a 111-item food frequency questionnaire. Dietary patterns were determined using principal component analysis in 2010 and replicated in 2014. Depressive symptoms were assessed using the Geriatric Depression Scale in 2014. Associations were assessed using linear regression adjusted for covariates.

**Results:** Two similar dietary patterns were identified in men and women; a healthy pattern characterised by vegetables, fruit and fish and an unhealthy pattern characterised by processed meats and refined grains. In women a higher current and past healthy pattern was associated with lower levels of depressive symptoms ( $\beta = -0.260$ ; 95%CI:  $-0.451$ ,  $-0.070$ ; and  $\beta = -0.201$ ; 95%CI:  $-0.390$ ,  $-0.013$ , respectively). An association

between a higher current unhealthy pattern and higher depressive symptoms was also observed also in women ( $\beta = 1.367$ ; 95%CI:  $0.679$ ,  $2.055$ ). There were no associations in men.

**Conclusions:** In older women dietary patterns were associated with depressive symptoms yet these associations were not seen in older men. Interventions are required to further investigate the role of whole diet in depression.

**Funding source(s):** Diabetes Australia Research Trust, ARC

#### P86

### ADHERENCE TO MEDITERRANEAN DIET; NOT OLIVE OIL CONSUMPTION ALONE PREDICTS HYPERCHOLESTEROLEMIA IN ELDERLY: THE MEDIS STUDY

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**Background/Aims:** This analysis aimed to compare the role of olive oil consumption with that of Mediterranean diet on their diagnostic value for the presence of hypercholesterolemia.

**Methods:** Mediterranean islands study (MEDIS) recruited 2749 older (over 65 years of age) individuals between 2005–2015. Recruitment occurred from 21 Mediterranean islands and the rural Mani region (Peloponnesus) of Greece. Dietary habits, energy intake, physical activity status, socio-demographic characteristics (altitude in residing area, lifestyle parameters) and clinical profile aspects (including blood lipids) were measured. The level of adherence to Mediterranean diet was assessed using the *a-priori* index MedDietScore and olive oil consumption was assessed with a validated FFQ. The diagnostic value of the food data was assessed using the AUC for the presence of hypercholesterolemia. The *p* value for the comparison of AUC with 0.5 was performed with Likelihood Ratio test.

**Results:** From diagnostic value of the presence of Hypercholesterolemia, MedDietScore was the only significant diagnostic tool (AUC = 0.547;  $p = 0.001$ ), but neither the number of olive oil servings per week (AUC = 0.476;  $p = 0.096$ ), nor the mean calories consumed from olive oil daily (AUC = 0.492;  $p = 0.560$ ) were effective diagnostic tools for the presence of Hypercholesterolemia

**Conclusions:** The overall pattern of Mediterranean diet and not individual foods or food-groups, could be responsible for the protection against CVD risk factors.

**Funding source(s):** Hellenic Heart Foundation, Harokopio University in Athens, Foundation for Education and European Culture (IPEP)

#### P101

### THE EFFECTS OF L-THEANINE AND EGCG ON PALMITIC ACID INDUCED INFLAMMATION IN MOUSE HYPOTHALAMIC NEURONAL CELL LINES (MHYPOE-N42)

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**Background/Aims:** The consumption of long-chain saturated fatty acids induces hypothalamic inflammation associated with insulin and leptin resistance. In contrast, bioactive compounds such as epigallocatechin gallate (EGCG) and L-theanine (L-THE) were reported to exhibit antioxidant and anti-inflammatory properties. This study determined the effect of EGCG on mitochondria morphology and L-THE on mitochondrial morphology and the expression of pro-inflammatory markers in cultured hypothalamic neurons (mHypoE-N42) after palmitic acid (PA) challenge.

**Methods:** mHypoE-N42 cells were treated with BSA (50  $\mu$ M) or PA (200  $\mu$ M) in the presence or absence of L-THE (50  $\mu$ M). Semi-quantitative RT-PCR was used to assess the expression of *IL-6* and *TNF $\alpha$* . For mitochondrial morphology, mHypoE-N42 cells were incubated with BSA (50  $\mu$ M) or PA (200  $\mu$ M) in the presence or absence of L-THE (50  $\mu$ M) or EGCG (50  $\mu$ M).

Mitochondria were stained using MitoTracker Red CMXRos. One-way ANOVA followed by Tukey's test was used to determine the differences.

**Results:** PA upregulated the expression of both *IL-6* ( $2.1 \pm 0.3$ ;  $p < 0.001$ ) and *TNF $\alpha$*  ( $1.7 \pm 0.1$ ;  $p < 0.01$ ) relative to BSA. Additionally, L-THE decreased *TNF $\alpha$*  mRNA levels ( $p < 0.05$ ), but did not downregulate *IL-6* expression compared to PA treated cells ( $p > 0.05$ ). PA decreased mitochondria size and density compared to BSA and this effect was ameliorated when L-THE was added alongside PA. No improvement in mitochondria density or size were observed when EGCG was used in combination with PA.

**Conclusions:** L-THE inhibits PA-induced *TNF $\alpha$*  upregulation and can putatively ameliorate high-fat diet-induced hypothalamic inflammation and obesity.

**Funding source(s):** Scottish Universities Life Sciences Alliance; University of Canberra

## Poster session 8: Dietary strategies

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### CHANGING DIET AND PHYSICAL ACTIVITY IN TIME-POOR POPULATIONS

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**Background/Aims:** Nurses have long and rotational shift work, which lead to irregular meal patterns, frequent snacking on energy-dense nutrient poor foods (EDNP), inactivity, and thus a high prevalence of overweight and obesity (62%). The aim of this study was to deliver a 3-month workplace intervention study to improve diet and physical activity behaviours (PA) in nurses.

**Methods:** Intervention materials included pedometers, a smartphone app, and a dedicated Facebook group. Diet quality (food frequency questionnaire) and PA (accelerometer) were the primary outcomes. Secondary outcomes included weight, BMI, waist circumference, and blood pressure. All measurements were taken at baseline, end of the intervention (3-months) and follow-up (6-months). Changes pre and post were analysed with paired two-tailed *t*-test, and repeated measures were used to analyse changes across baseline, 3- and 6-months.

**Results:** Forty-seven nurses, aged  $41.4 \pm 12.1$  years old and 87% female working at two hospitals in Brisbane (Australia) participated in the study. At 3-months, total energy intake coming from fruit and vegetables significantly increased by 3.8% ( $p = 0.04$ ), while it decreased for EDNP foods (-0.8%,  $p = 0.38$ ). There was a -0.5% decrease on time spent in moderate-to-vigorous PA, and a decreased in average daily steps by 500 steps/day (both  $p < 0.02$ ). At 6-months, dietary outcomes were maintained, while daily steps and sedentary time slightly decreased from 3-months. There were small changes on weight and BMI at 3- and 6-months ( $p > 0.30$ ).

**Conclusions:** Participants indicated that changing both behaviours was too hard, suggesting that in time-poor and stressed populations changing one behaviour at the time could be more feasible and effective. Social media and smartphone app could be effective at promoting diet behaviour but not PA.

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

P88

### REVIEW OF BEHAVIOUR CHANGE INTERVENTIONS TO REDUCE POPULATION SALT INTAKE

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**Background/Aims:** Majority of the population around the world consume excess salt intake causing raised blood pressure and cardiovascular disease - the leading cause of death worldwide. Although behaviour change interventions aiming to influence consumers' salt related behaviours are commonly implemented, their effectiveness is unclear. This systematic review investigates the effectiveness of behaviour change interventions

that aim to reduce salt intake on a population level.

**Methods:** Studies of behaviour change interventions with a population or sub-population focus were identified from a peer-reviewed and grey literature search. Study and intervention characteristics were extracted for descriptive synthesis. The quality of studies were assessed against a modified Cochrane risk of bias tool.

**Results:** Twenty-two studies involving 41,448 participants were included. Behaviour change interventions were categorised as health education interventions (14), public awareness campaigns (4) and multi-component interventions (4). 19 of the 22 studies found behaviour change interventions significantly reduced salt intake (ranging from 0.9 g/d to 4.4 g/d) and/or improved salt-related behaviours. Based on the gold standard method of measuring salt intake (24-hour urine collection), two of six studies reported a significant reduction. All studies scored high risk of bias in one or more domains.

**Conclusions:** The majority of behaviour change interventions successfully improved salt-related behaviours or reduced salt intake, but the overall strength of the evidence is moderate to weak. More research is required in LMICs where behaviour change interventions potentially have greater impact as salt added by individuals remains a major contributor of salt intake.

**Funding source(s):** NHMRC, VicHealth, Australian Primary Health Care Research Institute

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### IMPROVING THE HEALTH OF SOUTH AUSTRALIAN TRUCK DRIVERS: A 6-WEEK LIFESTYLE INTERVENTION

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**Background/Aims:** The occupational duties of truck driving enforce long periods of time sitting, and are often accompanied by unhealthy dietary behaviours. These factors increase risk for overweight/obesity and associated chronic diseases. The aim of this study was to implement a 6-week lifestyle intervention in municipal truck drivers.

**Methods:** Ten overweight adult truck drivers participated in a 6-week nutrition-focused intervention including individualised dietary counselling and education. Weight, waist circumference (WC) and blood pressure (BP) were assessed at Weeks 0 and 6. Three-day weighed food records (providing nutrient intake and food distribution according to the AGHE) and physical activity diaries were completed prior to commencing the study and at Week 6. Pre-post differences in weight, WC, BP, nutrient and food intake, and physical activity (min) were tested using the Wilcoxon signed-rank test.

**Results:** Six drivers completed the intervention (mean age 42.2 years; BMI:  $32.9 \text{ kg/m}^2$ ). Energy intake (kJ), time spent in physical activity, weight, WC and BP remained unchanged. Consumption of discretionary foods decreased significantly from 8 serves/day at Week 0 to 2.5 serves/day at Week 6 ( $p < 0.05$ ). Total fat and SFA intakes decreased significantly by Week 6 (-5.7% and -3.2%, respectively;  $p < 0.05$ ).

**Conclusions:** Dietary education resulted in reduced intake of discretionary foods, total fat and SFA. This suggests that appropriately powered longer-term corporate-based interventions may lead to anthropometric improvements in this population.

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

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### A SYSTEMATIC REVIEW OF BRIEF NUTRITION INTERVENTIONS IN ADULTS

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**Background/Aims:** Brief interventions are effective in improving health behaviours including alcohol intake, however the utility of this approach for nutrition outcomes has not been determined. The objective of this review was to assess the effectiveness of brief interventions aiming to