

modified to suit telephone health coaching sessions and used to score the therapeutic alliance developed within participant interviews ( $n = 18$ ). Each phase of development was documented. Inter-rater reliability was measured between two raters to confirm reliability using Kappa coefficients. Discrepancies were discussed between raters.

**Results:** Kappa coefficients for each item ranged from 0.039 to 0.640 prior to rater discussions and 0.203 to 0.895 post rater discussions. Raters commented on the subjectivity of the WAI-O-S. The modified version was determined to be feasible.

**Conclusions:** The modified version of the WAI-O-S for telephone health coaching sessions for weight loss is a feasible tool for measuring the therapeutic alliance. More research may be necessary to determine further refinements.

**Funding source(s):** Illawarra Health and Medical Health Institute.

#### USE OF HEALTHY LIFESTYLE PROGRAMS FOR WEIGHT MANAGEMENT/LOSS IN OVERWEIGHT AND OBESE ADULTS

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**Background/Aims:** The aim of this study was to determine the types of healthy lifestyle programs (HLPs) (diet and physical activity) used by overweight and obese adults to help them maintain or lose weight.

**Methods:** Men and women residing in the Illawarra region who expressed an interest in taking part in a 12 month healthy lifestyle trial were asked to complete an online screening survey asking about their health and well-being. The survey was completed by 620 participants and included questions on healthy lifestyle programs and self-reported height and weight.

**Results:** Median BMI was 32.8 kg/m<sup>2</sup> (range 25.0–63.8 i.e. obese) with no significant difference between males and females ( $p = 0.103$ ). About two thirds (66%) of participants reported using  $\geq 1$  HLPs in the previous two years whilst 12% reported using  $\geq 3$  HLPs. Of the overweight participants (BMI range 25–29.99), 42% did not use a HLP whereas 15% of participants with a BMI  $\geq 40$  reported using  $\geq 3$  HLPs in the previous two years. The most commonly used HLPs reported were private programs such as Weight Watchers (33% and mobile applications (33%). This compares to 7% of participants reported to use Government HLPs such as NSW Get Healthy.

**Conclusions:** These preliminary findings are useful for understanding the frequency and types of healthy lifestyle programs being used by an overweight and obese population. Further research is necessary to determine whether these programs are effective and how they can be further developed and incorporated in weight loss programs.

**Funding source(s):** Illawarra Health & Medical Research Institute.

#### DAIRY INTAKE ENHANCES BODY WEIGHT AND FAT MASS LOSS DURING ENERGY RESTRICTION IN 18–50 YEAR OLDS – A META-ANALYSIS

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**Background/Aims:** Dairy contain components that promote fat loss. We conducted a meta-analysis of randomised controlled trials (RCT) in 18–50 year olds investigating effects of dairy during energy restriction on body weight and composition.

**Methods:** RCT  $\geq 4$  weeks in 18–50 year olds comparing dairy consumption (dairy food & dairy supplements) with control diets lower in dairy during energy restriction on body weight, fat and lean mass were identified by searching MEDLINE (Web of Science), EMBASE, PubMed, Cochrane Central and WHO ICTRP until June 2014. Multi-component interventions, including those with resistance training, were excluded. Reports were identified and critically appraised in duplicate. Data were pooled using random-effects meta-analysis.  $I^2 > 50\%$  indicated heterogeneity. Dose effect was assessed using meta-regression analysis. Quality of the body of evidence was rated using GRADE guidelines.

**Results:** Sixteen RCTs ( $n = 637$ ) were included, all conducted in overweight/obese participants. Consumption of 2–4 standard servings/day of

dairy food compared to  $\leq 1$  serving/day, or 20–84 g/day of whey protein compared to placebo over median 16 week duration resulted in greater bodyweight loss [mean (95%CI): -1.21 (-1.74, -0.14) kg,  $p < 0.00001$ ,  $I^2 = 15\%$ ] and fat mass loss [-1.41 (-2.04, -0.77) kg,  $p < 0.0001$ ,  $I^2 = 36\%$ ]. Lean mass was not differentially affected. Dairy food and supplement studies did not differ. No dose-response effect was observed and studies were largely undertaken in women (84%). Quality of evidence was rated as moderate.

**Conclusions:** Increased dairy intake as part of an energy restricted diet moderately enhanced bodyweight and fat mass loss in 18–50 year olds. Further research is needed to confirm these effects in men.

**Funding source(s):** Dairy Health and Nutrition Consortium.

#### TYPICAL PORTION SIZE OF CORE FOODS AMONG AUSTRALIAN ADULTS: THE 2011–12 NATIONAL NUTRITION AND PHYSICAL ACTIVITY SURVEY

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**Background/Aims:** Despite the important role of core foods in diet quality and energy intake, little is known about portion sizes of core foods. To examine the typical portion sizes of commonly consumed core foods in Australian adults, and to compare these data with the ADG standard serve.

**Methods:** Typical portion sizes are defined as the amounts of foods consumed at one eating occasion. Age- and sex-specific median portion sizes and interquartile range (grams) of adults aged 19 years and over ( $n = 9341$ ) were analysed using 24hour recall data from the 2011–12 National Nutrition and Physical Activity Survey. Percentage differences between median portion sizes and the ADG standard serve were calculated.

**Results:** Ninety-seven core food categories were examined. Significant sex and age differences in median portion sizes were found in 57% of foods studied. Greatest variations in portion sizes were observed for amorphous foods such as cooked rice, oats, milk and water. Median portion sizes of breads and cereals, meat and chicken cuts, and starchy vegetables were consistently larger than their standard serves (difference between portion size and standard serve, 30% to 160%). In contrast, the portion sizes of dairy products, some fruits, and non-starchy vegetables were smaller than their standard serves (-30% to -90%).

**Conclusions:** Our analysis revealed significant age and sex differences in portion sizes of core foods, and discrepancies between core food portion sizes and the ADG standard serve among Australian adults. These findings are particularly relevant for development of guidance and policies regarding portion size.

**Funding source(s):** National Heart Foundation of Australia.

#### CONCURRENT SESSION 14: FOOD & HEALTH. DISCRETIONARY FOOD CONSUMPTION IN THE VICTORIAN HEALTH MONITOR SURVEY

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**Background/Aims:** The Australian Dietary Guidelines recommend limiting discretionary food (DF) choices i.e. 'foods containing saturated fat, added salt, added sugars and alcohol'. Increased consumption of DFs are associated with increased risk of obesity and chronic disease. Population dietary surveys provide information on actual consumption of DFs which inform public health policy decisions.

**Methods:** The 2009–10 Victorian Health Monitor was a state-wide cross-sectional health measurement survey of adults (18–75 years) from 50 randomly selected Census collection districts throughout Victoria. A total of 3,506 completed 1–4 non-consecutive 24-hour recalls, were analysed using AUSNUT 2007. Foods were classified as DFs based on the Australian Health Survey definition.

**Results:** Overall, 27% of foods consumed were classified as DFs. Total energy intake was 11.3 MJ (95%CI: 11.1–11.6 MJ) for males and 8.4 MJ for females (95%CI: 8.2–8.7 MJ,  $p < 0.05$ ). Males (35.9% 95%CI: 34.9–36.9%) consumed significantly more energy from DFs than females (31.5%, 95%CI: 30.4–32.6%,  $p < 0.05$ ), particularly more sugar (44.1% 95%CI: 42.4–45.9% vs. 40.3%, 95%CI: 38.9–41.8%,  $p < 0.05$ ) and sodium (38.3%, 95%CI: 37.4–39.2% vs. 34.7%, 95%CI: 33.5–36%,  $p < 0.05$ ).

**Conclusions:** These data suggest Victorian adults are not limiting their consumption of DFs in line with guidelines and there is a need for public health strategies to support limiting DF consumption. Continued monitoring of food consumption by comprehensive population dietary surveys are required in order to determine the success of public health approaches to limit the consumption of DFs.

**Funding source(s):** Department of Health and Human Services, Victoria.

#### ESTIMATING DAIRY FOOD INTAKE: DIVERGENCE BETWEEN RESULTS FROM NATIONAL NUTRITION SURVEYS AND DAIRY INDUSTRY ASSESSMENTS

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**Background/Aims:** The 2011/12 Australian Health Survey indicated mean intake of the dairy food group is below the minimum recommended level for all population groups. With the timing of the next national nutrition survey unknown, on-going, regular monitoring of dairy intake is needed.

We aimed to investigate use of an alternative source of data to monitor dairy consumption between national nutrition surveys.

**Methods:** Domestic consumption of milk, cheese and yoghurt was calculated for each year using company sales data from all major dairy companies, Australian Bureau of Statistics commodity import data and a specialty cheese survey. This captured both direct consumption (e.g. supermarket dairy food purchases) and indirect consumption (e.g. dairy foods as ingredients in other foods). Adjustments were made for waste (29%). These industry-derived figures were compared with intake data for these foods collected in the 1995/96 and 2011/12 national nutrition surveys (with the former concorded to the latter).

**Results:** Industry figures suggest that, between 1995/6 and 2011/2, there was a small increase of 0.2 serves/day in per capita milk, yoghurt and cheese intake, from 1.4 to 1.6 serves/d. In contrast, results from the national nutrition surveys suggest a decline of 0.2 serves/day during this period, from 1.5 to 1.3 serves/d. Some of this variation may be due to differences in coding between the nutrition surveys, particularly in relation to cheese contained in mixed dishes, and mis-reporting.

**Conclusions:** The divergence in results highlights the need for on-going, regular, national dietary intake monitoring using consistent methodology.

**Funding source(s):** Dairy Australia.

#### FACTORS INFLUENCING ROTATING SHIFT WORKERS EATING HABITS: A CROSS-SECTIONAL STUDY OF MELBOURNE METROPOLITAN FIRE FIGHTERS

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**Background/Aims:** Shift workers are at increased risk of chronic conditions including obesity, cardiovascular diseases and type 2 diabetes. Dietary factors may contribute to the onset and/or development of disease risk. Shift work alters meal timing, with food often consumed in conflict with normal circadian rhythms. The aim of this study was to understand

factors affecting the dietary habits of rotating shift workers during working hours.

**Methods:** A cross-sectional study comprising qualitative and quantitative data collection. Focus groups ( $n = 6$ ) were undertaken with 41 Melbourne Metropolitan fire fighters who continually work a rotating roster. A subgroup of participants ( $n = 19$ ) completed repeated 24-hour dietary recalls (two during day shift schedule and two during night shift schedule). Data were entered into FoodWorks and analysed using Wilcoxon signed-rank test;  $p < 0.05$  was considered significant.

**Results:** The mean age (SD) and years of service was 49 years (10.2) and 24.7 (10.8) years, respectively. Thematic analysis revealed four key factors impacting dietary choices: shift schedule; co-worker attitudes and food choices; availability of time and the accessibility of food; concern and awareness of health. Total 24 hour energy intake during day shift schedule [median (IQR) 11419 (3466) kJ] was similar to during night shift schedule [10350 (4420) kJ,  $p = 0.295$ ]. A greater proportion of snacks comprised discretionary food items (46% vs. 33%) during night shift schedule compared with day shift schedule.

**Conclusions:** There are specific shift-related factors that influence food choices, which need to be considered when developing dietary recommendations for shift workers.

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

#### CONSTRUCTION WORK ENVIRONMENT INFLUENCES ON NUTRITION AND BEVERAGE INTAKE

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**Background/Aims:** Industrial workforces are at higher risk of preventable chronic diseases than the general population. The aim of this study was to investigate influences on food and beverage intake by construction workers and managers and potential levers of health promotion in construction food environment.

**Methods:** Qualitative semi structured focus groups/interviews were conducted with 26 construction workers at 5 urban construction sites in Brisbane, Australia. Questions were asked about: nutrition and beverage intake onsite; the impact of working hours and breaks on intake; any perceptions of effects of food and beverages on safety and productivity and site influences and barriers/facilitators for consumption. Managers were also asked about their role and any perceived responsibilities with regards to beverage intake, nutrition and safety onsite. Thematic analysis and cross-checks of themes between three researchers was conducted.

**Results:** Formulated caffeinated beverage consumption was considered a safety concern by most occupational health and safety (OHS) managers and were perceived to effect hydration and pose unique risks. Nutritional intake was considered separate to beverage consumption and outside of the OHS role. Younger ages and long working hours were perceived as influences on consuming FCB and less healthy food. Site vending machines were considered as key influences on beverage and nutritional intake on worksites.

**Conclusions:** Formulated caffeinated beverage intake is considered a potential safety concern in hot climates on construction sites. Using beverage intake as a lever for nutritional change on industrial worksites may be efficacious.

**Funding source:** Department of Justice and the Attorney-General, Queensland Government.

#### INTAKE AND FOOD SOURCES OF ADDED SUGAR IN THE AUSTRALIAN POPULATION

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**Background/Aims:** There are no published data regarding the current added sugars intake and major food sources contributing to added sugars of the Australian population. The latest study on this topic was based on