R. Henry, G.E. Peoples, P. McLennan. Graduate School of Medicine, University of Wollongong, NSW, Australia
E-mail address: petermc@uow.edu.au (P. McLennan)

Background/Aims: This study aimed to investigate the effect of low dose fish oil diets on skeletal muscle contraction and low frequency fatigue after initial fatiguing stimulation.

Methods: A total of 18 male Wistar rats were fed (for 5w) a 10% fat diet containing: olive oil (OO); or 0.31% (lowFO); or 1.25% moderate (modFO) NulMega. High-DHA tuna fat in OO. The constant-flow autologous blood-perfused hindlimb was prepared in vivo and stimulated via sciatic nerve. Tetanic stimulations preceded low frequency stimulation protocols at 2 Hz continuous and 5 Hz burst.

Results: FO diets increased muscle DHA (gastrocnemius: OO 7.8 ± 0.7; LowFO 20.0 ± 0.1% total phospholipid fatty acids). No difference was found in tetanic force (~200 N/100 g), but rate of tetanic force development was faster in LowFO and ModFO (24.6 ± 3.9; 21.1 ± 3.4 vs. 16.3 ± 1.0 kN/s; p < 0.05). After the tetanic contraction, twitch force development was greater in FO rats throughout 2 Hz stim. The 5 Hz burst contractions were of greater force in FO rats (peak force: OO 30.0 ± 4.3; LowFO 50.7 ± 7.4; ModFO 75.7 ± 11.4 N/100 g; p < 0.05), representing 14%; 25%; 35% of unfatigued peak responses; fatiguing finally to 6%; 17%; 5%.

Conclusions: Feeding rats diets supplemented with FO within a human dietary range increased muscle DHA and moderated low frequency fatigue. Low frequency fatigue leads to a greater sense of effort in walking and stair climbing and this effect of FO on fatigue that is commonly associated with daily activities of living warrants further investigation in human studies.

Funding source(s): N/A.

MOTIVATIONAL INTERVIEWING AND VALUES CLARIFICATION: BEHAVIOURAL THERAPY FOR WEIGHT LOSS

D. Arenson, A.T. McMahon, L. Tapsell, A. Nagy. School of Medicine, Nutrition & Dietetics, University of Wollongong, NSW, Australia
E-mail address: amcmahon@uow.edu.au (A.T. McMahon)

Background/Aims: Health coaching using behavioural therapy is an effective method for encouraging weight loss. Acceptance and Commitment Therapy focuses on connecting individuals with their values to change behaviour. There is no current method for assessing value clarity of participants of a weight loss trial through telephone health coaching. We aimed to determine the reliability of a criteria-based scoring instrument developed to determine the clarity of values articulated by participants of a weight loss intervention trial.

Methods: An instrument and corresponding protocol [Value Articulation Instrument (VAI)], were developed to analyse value clarification in telephone health coaching sessions of a weight loss trial (n = 18). The VAI was developed using an iterative process of reviewing and refining until deemed valid for use. Inter-rater reliability was measured using Kappa Coefficient and Spearman’s Correlation between two raters. Discrepancies were discussed between raters to determine reliability.

Results: Inter-rater reliability ranged from poor to substantial with kappa coefficients -0.098 to 0.647 at the second stage of development. Raters then discussed variances in results and modified the VAI to develop a reliable instrument for rating.

Conclusions: The refined version of the VAI was deemed reliable for scoring value clarity of participants. Further modifications may be required for future research.

Funding source(s): N/A.

VITAMIN D IS INDEPENDENTLY ASSOCIATED WITH DEPRESSION AND INFLAMMATION IN OVERWEIGHT WOMEN WITH AND WITHOUT PCOS

L. Moran, 1, H. Teede, 2, 3, A. Vincent, 1 The Robinson Research Institute, Uni. of Adelaide, SA, Australia; 2 Monash Centre for Health Research Implementation, Monash Uni., VIC, Australia; 3 Diabetes and Vascular Medicine Unit, Monash Health, Clayton, VIC, Australia
E-mail address: lisa.moran@adelaide.edu.au (L. Moran)

Background/Aims: Depression and anxiety are common in women with polycystic ovary syndrome (PCOS). An association between vitamin D deficiency and mood disorders or inflammation has been previously reported in the general population. The aim of this study was to investigate the association between 25 hydroxy-Vitamin D (25OHD) status, anxiety and depression and inflammation in women with (n = 50) and without (n = 23) PCOS.

Methods: Cross-sectional study in overweight or obese premenopausal women with (n = 50) and without (n = 23) PCOS. Primary outcome measures were 25OHD, mood (Hospital Anxiety and Depression questionnaire) and inflammation [high sensitivity C-reactive protein (hsCRP)]. Results were analysed by multiple linear regression.

Results: Vitamin D deficiency (25OHD < 50 nmol/L) (46% vs. 39%, p = 0.311) and 25OHD (50.4 ± 22.2 nmol/L vs. 51.6 ± 19.0 nmol/L, p = 0.828) were not significantly different in women with and without PCOS. For all women combined, 25OHD was the only significant independent predictor of depression (β ± SE = -0.063 ± 0.021, p = 0.005) and hsCRP (β ± SE = -0.041 ± 0.015, p = 0.010).

Conclusions: Vitamin D deficiency is common and vitamin D is independently associated with depression and inflammation in overweight women with and without PCOS. Further investigation to clarify the inter-relationship between vitamin D, inflammation and depression is required to identify optimal prevention and treatment strategies for psychological and metabolic dysfunction in PCOS.

Funding source(s): Diabetes Australia Research Trust, Jean Hailes Foundation, South Australian Cardiovascular Research Development Program Fellowship; NHMRC Practitioner fellowship.

NUTRITIONAL PROFILING: ANEMIA, FAT INTAKE AND \(\gamma\)-TOCOPHEROLS IN A CHINESE COHORT

S. Mutter1, Z. Shi2, V.P. Mäkinen1, Heart Health Theme, South Australian Health & Medical Research Institute (SAHMRI), Adelaide, Australia; 2 School of Medicine, University of Adelaide, SA, Australia
E-mail address: stefan.mutter@sahmri.com (S. Mutter)

Background/Aims: The nutritional factors involved in the development of anemia are only partially understood. We conducted a cross-sectional survey to assess their relationships.

Methods: Three-day weighted food records, anemia and serum lipid information were collected for 1306 men and 1537 women (age: 20-77 yrs). loge was matched based on their age, sex, BMI and calories per day. Anemia and serum lipid information were matched based on their age, sex, BMI and daily calorie intake was signiﬁcantly reduced (PD: -1.2 ± 0.6 mg/dL, NS). Fat intake was signiﬁcantly lower (PD: 0.0 ± 0.6 mg/dL, NS) in women with PCOS than in women without PCOS.

Results: The median ± SD of the pairwise difference (PD) for the iron intake was lower in individuals living with anemia (PD: -0.4 ± 11.8 mg, NS). Their total cholesterol levels were signiﬁcantly lower (PD: -3.9 ± 52.2 mg/dL). HDL cholesterol and triglycerides levels were lower (PD: -0.8 ± 15.9 mg/dL, NS; -0.4 ± 109.1 mg/dL, NS). Fat intake was signiﬁcantly increased (PD: 2.4 ± 33.2 g), although vegetable oil and animal fat intake showed no signiﬁcant difference (PD: -1.2 ± 27.4 g, NS; 0.0 ± 31.4 g, NS). \(\gamma\)-tocopherol intake was signiﬁcantly reduced (PD: -0.6 ± 8.7 mg).

Conclusions: Although patients with anemia ate more fat, the fat-soluble \(\gamma\)-tocopherol was lower, and they had a more favourable lipid proﬁle. Our preliminary data suggest complex inter-relationships between anemia and nutritional proﬁles, and we are currently conducting multi-variate analyses on the follow-up study to detect clinically relevant subtypes in the population.

Funding source(s): N/A.

INSULIN RESISTANCE, GLUCOSE REGULATION, OBESITY AND MOOD: A REVIEW OF THE LITERATURE

R. Keegan1, N. Naumovski2, 1 Research Institute for Sport and Exercise, Faculty of Health, University of Canberra, ACT, Australia; 2 Health Research Institute (UC-HRI), University of Canberra, ACT, Australia
E-mail address: nnaumovski@canberra.edu.au (N. Naumovski)