

assess*, iodine, "iodine deficient", IDD, deficient*, nutrition*, status, method*, procedure*, technique*, pregnant* was conducted. Studies were included if they (i) included pregnant women, (ii) used ≥ 1 common iodine monitoring method (iii) measured/reported gestational iodine status.

Results: Eighteen studies were reviewed. No "gold standard" method was found. Measures included urinary iodine concentration (UIC) (10/11 spot-UIC and 1/11 24-hour UIC), goitre rate and thyroid volume (2/18), six different thyroid hormones from blood serum samples (13/18) and food frequency questionnaires for dietary iodine intake (2/18). Spot-UIC is less sensitive, it is easy and inexpensive compared to ultrasound and thyroid stimulating hormone (TSH) one of the thyroid hormones measured. TSH also decreases significantly after six weeks gestation.

Conclusions: A combination of both UIC and TSH methods, with early screening and trimester specific reference intervals, appear to be the most accurate and cost-effective. A combination of methods may initially be more costly, although improved accuracy of early detection will be cost-effective long-term. Future research should use a combination of trimester specific universal screening methods in the absence of a gold standard.

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MICRONUTRIENT INTAKE DURING PREGNANCY IS A FUNCTION OF CARBOHYDRATE QUALITY

J. Goletzke¹, A.E. Buyken¹, R.G. Moses², J. Brand-Miller³. ¹Department of Nutrition and Food Sciences, University of Bonn and Institute of Child Nutrition, Dortmund, Germany; ²Illawarra Shoalhaven Local Health District, Wollongong, NSW, Australia; ³School of Molecular Bioscience and Charles Perkins Centre, University of Sydney, Australia
E-mail: jennie.brandmiller@sydney.edu.au (J. Brand-Miller)

Background/Aims: Dietary recommendations for pregnant women are primarily energy-adjusted extensions of those for non-pregnant women. However, despite an average gestational weight gain of ~13 kg, studies in pregnant women indicate intakes below the recommendations for energy and micronutrients. This study compared dietary intake in the second and third trimester of pregnancy with emphasis on energy intake and carbohydrate quality, and its relation to micronutrient profiles.

Methods: The analyses were based on 566 women participating in the PREGGIO Study. Using multi-level mixed regression analysis, energy intake, starch, sugar, fibre intake, dietary glycaemic index (GI) and load (GL) were related to the intake of different micronutrients.

Results: Energy intake decreased from the second to third trimester, from 8250 (95%CI: 7140, 9330) to 8,040 (6850, 9400) kJ/day ($p < 0.04$), and most women did not meet the NRVs for iron, folate and dietary fibre. After adjustment for age, ethnicity, pre-pregnancy BMI, and intervention group, energy intake was positively related to intake of all micronutrients ($p < 0.0001$). GI, GL and starch intake were inversely related to micronutrient intake ($p = 0.0025$) while higher total sugars predicted higher intake ($p = 0.0036$). Associations with dietary fibre were inconsistent.

Conclusions: The assumption that pregnant women increase energy consumption over the course of gestation was not evident in this cohort. This is a concern because all micronutrients were positively related to energy. A high intake of sugars and a low dietary GI and GL were the best predictors of a favourable micronutrient profile.

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EFFECT OF RIBOFLAVIN ON THE MAINTENANCE OF BONE QUALITY IN FEMALE LONG-DISTANCE RUNNERS

K. Kono¹, K. Matsuya¹, M. Sekine¹, N. Shiozawa¹, M. Ota¹, T. Yano¹. ¹Graduate School of Life Science, Toyo University, Japan
E-mail: s39101400086@toyo.jp (K. Kono)

Background/Aims: Stress fractures have been frequently reported in female long-distance runners. However, it cannot be prevented only by the measurement of bone mineral density (BMD). Therefore, studies of bone quality may be of significance in the prevention of stress fractures. Bone quality deteriorates with homocysteine (HCY) accumulation, caused either by a lack of B group vitamins or single nucleotide polymorphism (SNP) on

methylenetetrahydrofolate reductase (MTHFR) involved in HCY metabolism. In this study, we focused on riboflavin, which acts as coenzyme of MTHFR. We hypothesized that higher intake of riboflavin restores MTHFR activity. Furthermore, there has been little research into the clinical trial of riboflavin in athletes. Thus, we performed this pilot study of riboflavin and investigated its effect on HCY levels.

Methods: Ten female long-distance runners were given riboflavin every night for 3 months. Blood level of HCY was measured by HPLC; those levels were then compared before and after the intervention, and difference was tested by *t*-test using SPSS version 22.

Results: In MTHFR SNP subjects with the hetero type, their blood HCY levels decreased from those before the intervention (6.822 ± 0.696 vs. 6.631 ± 0.695 $\mu\text{mol/L}$; $p = 0.0025$). The level in subjects with the homo type was almost unchanged.

Conclusions: In this study, we suggest that riboflavin may decrease HCY levels in the blood by the restoration of the MTHFR activity in hetero type subjects, while, in homo type subjects, requirement for intake of riboflavin may be higher than intake in this study.

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EFFECT OF VANILLOID-LIKE AGENTS ON PLATELET AGGREGATION IS NOT MEDIATED THROUGH CANNABINOID RECEPTORS

S.Y. Almaghrabi¹, D.P. Geraghty¹, K.D.K. Ahuja¹, M.J. Adams¹. ¹School of Health Sciences, University of Tasmania, Launceston, TAS, Australia
E-mail: safa.almaghrabi@utas.edu.au (S.Y. Almaghrabi)

Background/Aims: Vanilloid-like agents, including capsaicin, the 'hot' principle in chilli, and the endocannabinoid / endovanilloid N-oleoyldopamine (OLDA), inhibit platelet aggregation, and may provide protection against CVD. We investigated whether the inhibitory effects of these agents are mediated by cannabinoid receptors (CB₁, CB₂).

Method: Venous blood was collected from four healthy participants in citrate tubes to obtain platelet-rich and platelet-poor plasma. The effects of vanilloid-like agents: capsaicin and OLDA was then determined using ADP-induced (5 μM) *in vitro* platelet aggregation in the absence and presence of CB₁ and CB₂ receptor antagonists (10 and 50 μM). Results for percent maximum aggregation were compared between blank (i.e., no vanilloid or antagonist) and test (i.e., 50 μM vanilloid \pm 10 or 50 μM antagonist) using ordinal logistic regression. Post-hoc analysis (Holm test) was used to adjust *p*-values for multiple comparisons.

Results: Compared to blank, addition of capsaicin or OLDA significantly inhibited platelet aggregation (%Max, mean \pm SEM; $85 \pm 6\%$ vs. $59 \pm 12\%$, $p = 0.005$; $65 \pm 7\%$ vs $47 \pm 9\%$, $p = 0.004$, for capsaicin and OLDA, respectively). CB receptor antagonists (irrespective of concentration) did not affect capsaicin- or OLDA-induced aggregation (all $p > 0.05$).

Conclusions: The inhibitory effects of capsaicin and OLDA on platelets are not mediated through CB₁ or CB₂ receptors.

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MICRONUTRIENT SUPPLEMENT USE IN UNIVERSITY STUDENTS UNDERTAKING A FOOD AND NUTRITION UNIT

A.R. Wiltgren¹, A.O. Booth¹, G. Kaur¹, D. Lo¹, S. Kourouniotis¹, S. Cicerale¹, K. Lacy¹, R. Keast¹, L.J. Riddell¹. ¹Centre of Physical Activity and Nutrition Research, Deakin University, Melbourne, VIC, Australia
E-mail: arwil@deakin.edu.au (A.R. Wiltgren)

Background/Aims: To identify the demographic characteristics of supplement users in a sample of university students undertaking a food and nutrition unit.

Methods: Students enrolled in a first year Food and Nutrition unit completed a Food and Diet Questionnaire (FDQ) and a Food Frequency Questionnaire (FFQ). Of the 1603 students completing the questionnaires, 1335 (83%) consented to participate. Participants were asked about consumption of multivitamin with iron or other minerals, multivitamin, vitamins A, B, C, and E, β -carotene, calcium, folate/folic acid, iron and zinc in the FFQ. Nationality, weight and height were self-reported in the FDQ and BMI was calculated. Supplement users were defined as using any supplement at least once a month or more.