

# DRO

Deakin University's Research Repository

## This is the published version

Lim,K, Szymlek-Gay,EA, Booth,AO, Nowson,CA, McNaughton,SA, Gibson,RS, Bailey,KB, Irving,D, Fisher,J, Keller,A and Riddell,LJ 2014, Associations between dietary iron and zinc intakes and iron and zinc status in premenopausal women, in NSA 2014 : Proceedings of the 38th Nutrition Society of Australia Annual Scientific Meeting, Nutrition Society of Australia, [Perth, W. A.], pp. 1-1.

## Available from Deakin Research Online

<http://hdl.handle.net/10536/DRO/DU:30071799>

Every reasonable effort has been made to ensure that permission has been obtained for items included in Deakin Research Online. If you believe that your rights have been infringed by this repository, please contact [drosupport@deakin.edu.au](mailto:drosupport@deakin.edu.au)

**Copyright:** 2014, Nutrition Society of Australia

**Methods:** In a cohort of 460 men and women (mean age  $\pm$  SD: 72  $\pm$  5 years) dietary intake was assessed using a 4-day weighed food diary. Cardiovascular health and risk was examined by a series of measures including medical history, anthropometry, blood pressure, and echocardiography. Multivariate regression analyses were used to examine the relationships between micronutrient intake, cardiovascular risk and function.

**Results:** More than half of this at-risk cohort consumed less than recommended levels of calcium, folate, zinc and magnesium, and less than 20% met sodium intake recommendations. After covariate adjustment, magnesium intake was inversely correlated with heart rate ( $\beta$   $\frac{1}{4}$  -0.095,  $p$   $\frac{1}{4}$  0.038). Left ventricular mass index was positively associated with dietary niacin intake in this group ( $\beta$   $\frac{1}{4}$  0.206,  $p$   $\frac{1}{4}$  0.005), however no other echocardiographic measures were associated with dietary micronutrient intake.

**Conclusions:** In a cohort at risk of heart failure and with deficiencies in dietary intake of several micronutrients, magnesium intake was associated with a lower heart rate. The association between niacin intake and left ventricular hypertrophy suggests prospective examination of niacin intake and development of diastolic dysfunction should be undertaken.

**Funding sources:** NHMRC, Monash University.

#### ASSOCIATIONS BETWEEN DIETARY IRON AND ZINC INTAKES AND IRON AND ZINC STATUS IN PREMENOPAUSAL WOMEN

K. Lim<sup>1</sup>, E.A. Szymlek-Gay<sup>1</sup>, A.O. Booth<sup>1</sup>, C.A. Nowson<sup>1</sup>, S.A. McNaughton<sup>1</sup>, R.S. Gibson<sup>2</sup>, K.B. Bailey<sup>2</sup>, D. Irving<sup>3</sup>, J. Fisher<sup>3</sup>, A. Keller<sup>3</sup>, L.J. Riddell<sup>1</sup>. <sup>1</sup> Centre for Physical Activity and Nutrition Research, Deakin University VIC, Australia; <sup>2</sup> Department of Human Nutrition, University of Otago, Dunedin, New Zealand; <sup>3</sup> Australian Red Cross Blood Service, NSW, Australia  
E-mail: [k.lim@deakin.edu.au](mailto:k.lim@deakin.edu.au) (K. Lim)

**Background/Aims:** Foods recognised as good sources of iron tend to also contain zinc, and biochemical iron and zinc status may track each other. The aim of this study was to investigate whether there are associations between dietary iron and zinc intake, and between iron and zinc status in a convenience sample of Australian premenopausal women.

**Methods:** Women (18-50 years) were recruited in Melbourne and Sydney for this cross-sectional study. Dietary intake was assessed via a 150-item food frequency questionnaire (FFQ) and intakes were energy-adjusted using the residual method. Serum ferritin and serum zinc were used as markers of iron and zinc status. Demographic, anthropometric and blood donation information was collected. Multiple linear regression (dietary iron and serum ferritin as dependent variables) and  $C^2$  were used to investigate associations. **Results:** The FFQ was completed by 382 women, with 86% also providing blood samples. Using multiple regression, dietary iron intake was associated with dietary zinc intake ( $\beta$   $\frac{1}{4}$  0.46; 95% CI: 0.39, 0.54). There was also an association between natural log-transformed mg/L serum ferritin and mmol/L serum zinc ( $\beta$   $\frac{1}{4}$  0.06; 95% CI: 0.02, 0.10), however prevalence of low zinc concentrations did not differ between women with low or adequate iron stores ( $p$   $\frac{1}{4}$  0.92).

**Conclusions:** There appears to be a modest association between dietary iron and zinc intake and a possible association between iron and zinc status in Australian premenopausal women.

**Funding source(s):** Deakin University Partnership Grant Scheme; Centre for Physical Activity and Nutrition Research; Australian Red Cross Blood Service; Meat & Livestock Australia Ltd.

#### DIETARY MICRONUTRIENT INTAKE AND CARDIOVASCULAR RISK FACTORS IN A POPULATION AT RISK OF HEART FAILURE

A.J. Owen<sup>1</sup>, E. Ashton<sup>1</sup>, D.J. Campbell<sup>2</sup>, C.M. Reid<sup>1</sup>, D. Liew<sup>3</sup>, U. Boffa<sup>4</sup>, S. Stewart<sup>5</sup>, H. Krum<sup>1</sup>. <sup>1</sup> Epidemiology & Preventive Medicine, Monash University, VIC, Australia; <sup>2</sup> Molecular Cardiology, St Vincent's Institute, VIC, Australia; <sup>3</sup> Melbourne EpiCentre, Melbourne University, VIC, Australia; <sup>4</sup> School of Medicine, University of Adelaide, SA, Australia; <sup>5</sup> Baker-IDI Heart & Diabetes Institute, VIC, Australia  
E-mail: [alice.owen@monash.edu](mailto:alice.owen@monash.edu) (A.J. Owen)

**Background/Aims:** It has been suggested that mild deficiencies of key micronutrients may influence risk of development of heart failure. The present study aimed to examine the relationship between micronutrient intake, cardiovascular risk factors and left ventricular hypertrophy in a cohort of older persons at risk of developing heart failure.