Iron status and dietary iron intake of young women

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Iron deficiency (ID) is the most common nutritional deficiency in Australia. Women are particularly at risk of ID as they have twice the requirement for iron and tend to consume less dietary iron than men. Iron deficient women during childbearing years have impaired immunity (1), a decreased work capacity and less efficient response to exercise (2). These symptoms could be decreasing work performance across a wide section of the Australian population.

Research into the iron status of young women has been recommended by a recent CSIRO report (3). The aim of this study is to measure the extent of ID in Perth women aged 15-30 yr and to identify factors linked to iron status. Two hundred and eleven women have been recruited from schools, workplaces and other community centres, representing the range of socio-economic and ethnic groups in metropolitan Perth. A blood sample was collected from each subject. The sample analyses include serum ferritin concentration (SF), transferrin saturation and haemoglobin concentration (HB). A serum sample was frozen in order to measure the serum transferrin receptor concentration, at a later date. To identify factors linked to iron status information was collected on dietary intake (food frequency questionnaire), medical, socio-demographic and lifestyle details, height and weight, and knowledge of nutrition.

Subjects were classified as iron deficient when SF <16 µg/L. When compared to other methods, Hallberg (4) found SF <16 µg/L gives the best estimate of ID (specificity 98%, sensitivity 75%) as measured by stainable iron in bone marrow. For comparison with other surveys, subjects will also be classified as iron deficient according to the criteria used by those surveys.

A summary of the iron status and iron intake of women aged 15-30 yr is shown in the table below.

	percentage of subjects
Iron deficiency (SF <16g/L)	14.2
Low iron stores (SF <30g/L)	42.7
Iron intake < RDI	58.0
Iron intake < 70% RDI	17.5

Recommended Dietary Intakes - lower limits of the RDI were used (10 mg for 15-18 yrs and 12 mg for 19-30 yrs)

The prevalence of ID in women aged 15-30 yr is estimated at 14.2%, of those, 1.4% were anaemic. Between 17.5% and 58.0% of women aged 15-30 yr are at risk of ID because of reduced iron intake. This may be a major factor contributing to the high rate of ID in this group. Several factors known to influence iron status will be discussed.

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4. Hallberg L, Benstsson C, Lapidus L, Lindstedt G, Lundberg P, Hulten L. Screening for iron deficiency: an analysis based on bone marrow examinations and serum ferritin determinations in a population sample for women. Brit J Haematol 1993;85:787-98.