

## NSA Concurrent Oral Session 1: Public Health Nutrition

### Effect of iron supplementation in pregnancy on IQ of children at 4 years of age

SJ Zhou<sup>1</sup>, M Makrides<sup>1</sup>, RA Gibson<sup>1</sup>, P Baghurst<sup>2</sup>

<sup>1</sup>Child Health Research Institute, Women's and Children's Hospital, University of Adelaide, SA 5006

<sup>2</sup>Public Health Research Unit, Women's & Children's Hospital, SA 5006

**Background** - Evidence from animal studies has consistently demonstrated that inadequate iron nutrition during pregnancy leads to permanent structural and functional changes in the brain of offspring. However, there are no human intervention trials specifically designed to examine the effect of iron nutrition in pregnancy on childhood neurodevelopment.

**Objective** - To assess the IQ of children at 4 years of age whose mothers had previously participated in a double blinded randomised controlled trial (RCT) of iron supplementation in pregnancy.<sup>1</sup>

**Design** - Families who participated in the RCT<sup>1</sup> during 1997-1999 were invited to participate in a follow up study when the children were 4 years of age. The IQ of the children was assessed using the Stanford – Binet Intelligence Test (4th Ed). Additional information on possible confounders of child development such as home environment and length of breastfeeding was also collected.

**Outcomes** - Seventy-seven percent (302/391) of the children from the original trial participated (with parental consent) in the follow up study. The mean age and IQ of the children was  $4.2 \pm 0.2$  years and  $109 \pm 11$ , respectively. There was no difference in the IQ scores between children of iron supplemented mothers compared with children of placebo supplemented mothers. Girls had higher mean IQ than boys ( $110 \pm 11$  vs  $107 \pm 11$ ,  $P=0.03$ ). There was a strong association between IQ and home environment as assessed with the Home Screening Questionnaire. Birth order and the education level of parents were also associated with the IQ scores of children.

**Conclusions** - Maternal iron supplementation in pregnancy has no effect on IQ of the children at 4 years in this relatively well nourished population.

1. Makrides M, Crowther CA, Gibson RA, Gibson RS, Skeaff CM. Efficacy and tolerability of low-dose iron supplements during pregnancy: a randomized controlled trial. *Am J Clin Nutr* 2003;78:145-53.

---

### The use of dietary supplements in a group of potentially elite secondary school athletes

JJ Crowley, C Wall

*Auckland University of Technology, Auckland*

*Massey University, Albany, Auckland*

**Background** - Athletes, concerned with goals of maximising performance and fearful of losing their competitive edge, have been targeted as a significant consumer group for vitamin and mineral supplements. The reasons for athletes supplement use fall into three areas: to compensate for less than adequate diets or lifestyles; to meet unusual nutrient demands induced by heavy exercise; and to produce an ergogenic effect.

**Objective:** To investigate the use of dietary supplements taken by elite secondary school sports students.

**Design:** One hundred year 9 and 10 students, identified as having potential in their respective sports by their school administrators, were recruited from two decile 10 North Shore secondary schools, Rangitoto College and Takapuna Grammar to complete a questionnaire.

**Results:** Twenty-eight female athletes (84.8%) and 42 male athletes (62.6%) took dietary supplements. Energy products were taken by 43.1% of the athletes, vitamins by 28.7% and recovery products by 7.1%. Many athletes (52.8%) took more than one product. Multi-vitamins, B-group vitamins and vitamin C were the most commonly consumed vitamins. Parents, coaches and friends (74.8%) were the most important sources of information about dietary supplements and were also the most likely to suggest taking supplements (77.5%).

**Conclusions:** There was a very high rate of supplement use by athletes in this study. Adolescent athletes are encouraged to consume supplements by parents and coaches. Both parents and the athletes themselves need to be better informed as to the important role good nutrition has in assisting adolescent athletes to achieve their sporting goals.