

**Conclusions:** Excess abdominal adiposity is an objective index of disease risk. Whether this reflects an alteration to the South Asian genome, or is induced by intrauterine factors such as maternal nutrition remain to be established. What is clear is that the focus for preventative health in the south Asian population must move from adult to early life.

#### Reference(s)

[1] Harrington T, Thomas EL, Modi N et al. *Lipids* 2002; 37: 95–100.

#### 4B-6 No association between size at birth and levels of physical activity measured by accelerometers in Indian children

S.H. Kehoe<sup>1\*</sup>, G.V. Krishnaveni<sup>2</sup>, S.R. Veena<sup>2</sup>, K.N. Kiran<sup>2</sup>, P.J. Coakley<sup>1</sup>, C. Osmond<sup>1</sup>, C.H.D. Fall<sup>1</sup>. <sup>1</sup>MRC Epidemiology Resource Centre, University of Southampton, Southampton, UK, <sup>2</sup>Holdsworth Memorial Hospital, Mysore, India

**Aims:** To test the hypothesis that smaller size at birth predicts lower levels of physical activity in children.

**Study design:** Prospective observational cohort study of children born in Mysore, South India. Neonatal anthropometric measures were recorded within 48 hours of delivery (weight, MUAC, chest, abdomen and head circumference, crown-heel, crown-buttock and leg length, triceps and subscapular skinfolds). These values were adjusted for gestational age at birth. At age 7–8 years children wore accelerometers (CSA Actigraph) to collect physical activity data. Pilot study results were used to ascertain appropriate bands of accelerometer counts reflecting sedentary, light, moderate and vigorous activity. Anthropometric and bio-impedance data (fat and lean mass, body fat percent) were collected from the children within 6 months of wearing accelerometers.

**Subjects:** Children born between 1997 and 1998 (n = 345).

**Outcome measures:** Mean number of accelerometer counts per day, absolute amount and proportion of time spent: sedentary and in light, moderate and vigorous activity.

**Results:** Mean (SD) number of days of accelerometry recorded was 7.06 (1.09). Boys spent more time vigorously active than girls (26.3 v 18.9 minutes/day;  $p < 0.001$ ). Regression analysis (adjusted for age and sex) showed no significant associations between any of the neonatal anthropometric measures and the outcome activity variables. Current body fat percentage and subscapular skin-fold thickness were negatively associated with proportion of time spent vigorously active ( $p < 0.05$ , both).

**Conclusions:** In this population, good quality data showed no associations between body size or composition at birth and level of physical activity in childhood.

#### 4B-7 Birthweight and adult body size and composition: results from the AusDiab study

I. Al Salmi<sup>1\*</sup>, W.E. Hoy<sup>1</sup>, S. Kondalsamy-Chennakesavan<sup>1</sup>, E.L.M. Barr<sup>2</sup>, J.E. Shaw<sup>2</sup>. <sup>1</sup>Centre for Chronic Disease, The University of Queensland, Brisbane; <sup>2</sup>International Diabetes Institute, Melbourne, Australia  
E-mail: i.alsalmi@uq.edu.au

**Aim:** To study the relationship between birthweight and body habitus in the representative sample of a westernized population.

**Methods:** 10,788 participants in the second round of the Australian Diabetes, Obesity and Lifestyle study (AusDiab) were asked to complete a birthweight questionnaire. Associations between various current adult anthropometric and body composition measurements with birthweight were investigated.

**Results:** Of 7,157 who responded, 4,502 reported their birthweight which ranged from 0.4 to 7kg with a mean (SD) of 3.37 (0.7) kg. 384 were of low birthweight (LBW, <2.5 kg).

In females, lower birthweights were associated with lower height, weight, lean body mass (LBM) and total body water (TBW) than those of higher order birthweights (quintiles). However, waist circumference (WC), hip circumference (HC) and body fat percentage were similar across the quintiles. In males, lower

birthweights were similarly associated with lower height, weight, LBM and TBW. However, they were also associated with lower WC, HC, and body fat percentage. Among females with LBW, the risk of being obese, defined by WC, WHR and BMI was increased by 47%, 61% and 45%, respectively. Males with LBW did not exhibit any of these associations.

**Conclusion:** Lower birthweights predicted lower height and lean body mass in both sexes, but, in females only, there was a relative preservation of central fat. This phenomenon, influencing higher rates of obesity, while poorly understood, must reflect some advantage to survival or reproduction. It might also relate to predisposition to chronic diseases in adult life.

#### 4C-5 Maternal nutrition and circulating inflammatory markers in rural Indian children; Pune Maternal Nutrition Study

C.V. Joglekar<sup>1\*</sup>, C.S. Yajnik<sup>1</sup>, D.S. Bhat<sup>1</sup>, K.N. Raut<sup>1</sup>, V.A. Solat<sup>1</sup>, C. Fall<sup>2</sup>. <sup>1</sup>Diabetes Unit, King Edward Memorial Hospital & Research Centre, Pune, India, <sup>2</sup>Epidemiology Resource Centre, University of Southampton, Southampton, UK  
E-mail: joglekar@pn2.vsnl.net.in

**Aims:** To study associations between maternal nutrition during pregnancy and inflammatory markers in the children at 6 years.

**Study design:** The Pune Maternal Nutrition Study (PMNS) database has information on maternal pre-pregnancy characteristics and her food intake, physical activity and circulating levels of nutrients and metabolites during pregnancy. Children born in PMNS were measured serially from birth every 6 months. At 6 years body composition and inflammatory markers were measured. Ethical approval and consent were obtained.

**Subjects:** PMNS children (n = 698) at 6 years.

**Outcome measures:** Plasma inflammatory markers (CRP, IL-6, TNF- $\alpha$ ).

**Results:** Median plasma CRP, IL-6, TNF- $\alpha$  concentrations in these children were 1.90 mg/L, 1.47 pg/mL and 7.60 pg/mL respectively. CRP and TNF- $\alpha$  concentrations were higher in girls ( $p < 0.01$ ). CRP was positively associated with adiposity (body fat %). Size at birth was unrelated to inflammatory markers at 6 years. Higher maternal intakes of energy, protein and fat, and higher frequency of intake of green leafy vegetables (GLV) and dairy products at 18 weeks gestation predicted higher CRP concentration in the children ( $p < 0.001$ ) while TNF- $\alpha$  concentrations were lower in children whose mothers frequently consumed GLV and fruits. In a multiple regression analysis, higher maternal frequency of intake of GLV at 18 weeks gestation predicted higher CRP ( $p < 0.05$ ) and lower TNF- $\alpha$  ( $p < 0.001$ ) concentrations in the child, independent of the child's adiposity at 6 years.

**Conclusions:** This is the first demonstration of an association between maternal nutritional intake in pregnancy and inflammatory markers in the offspring, raising the possibility of nutritional programming of the immune system.

#### 4C-6 Inflammation and altered liver function is present in 13 year old children with features of the metabolic syndrome

R.C. Huang<sup>1\*</sup>, T.A. Mori<sup>1</sup>, J.P. Newnham<sup>1</sup>, G. Kendall<sup>2</sup>, N. Sloan<sup>2</sup>, F.J. Stanley<sup>2</sup>, L.I. Landau<sup>1</sup>, W.H. Oddy<sup>2</sup>, L.J. Palmer<sup>1</sup>, L.J. Beilin<sup>1</sup>. <sup>1</sup>The University of Western Australia (UWA), School of Medicine and Pharmacology, Royal Perth Hospital; <sup>2</sup>Telethon Institute for Child Health Research, UWA, Australia  
E-mail: rhuang@meddent.uwa.edu.au

**Aims:** Investigation of inflammation in Australian adolescents with features similar to the metabolic syndrome.

**Study design, Subjects and Outcome measures:** A prospective longitudinal pregnancy cohort was followed up at 13 years. 1377 children underwent anthropometric, fasting lipid, insulin, inflammatory markers, liver function tests and blood pressure measurements. Cluster analysis defined a group at risk with