Main outcome measures: Blood pressure (BP), random plasma glucose and anthropometrics, as well as prevalence of hypertension (BP >140/90 mmHg), impaired glucose tolerance (IGT; p-glucose 7.8-11.0 mmol/l), diabetes (DM; p-glucose $\geq$ 11.1 mmol/l), or overweight (BMI >25 kg/m²).

Results: Fetal-infant exposure to famine was associated with elevated systolic (+7 mmHg; $p < 0.001$) and diastolic (+5 mmHg; $p < 0.001$) BP, increased p-glucose (+0.3 mmol/L; $p < 0.04$) and waist circumference (+ 3cm, $p < 0.001$), increased risk of systolic hypertension (adjusted OR 2.87; 95% CI 1.90-4.34), IGT (OR 1.65; 95% CI 1.02-2.69) and overweight (OR 1.41; 95% CI 1.03-1.93) as compared to people born after the famine. The effect of fetal-infant famine on BP was seen in both women and men, whereas the effect on IGT was seen in men only, and the increased risk of overweight was confined to women.

Conclusions: Fetal and infant undernutrition is associated with significantly increased risk of hypertension and impaired glucose tolerance in 40-year-old Nigerians. Prevention of undernutrition during pregnancy and in infancy should therefore be given high priority in health, education, and economic agendas.

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DOES FOLIC ACID INTAKE IN PREGNANCY INCREASE RISK OF WHEEZE AT 18 MONTHS? EVIDENCE FROM THE DANISH NATIONAL BIRTH COHORT.

E. Maslova¹, C. Granstrom², S. Petersen², E. Oken³, S.F. Olsen²

¹Nutrition, Harvard School of Public Health, Boston, MA, USA, ²Maternal Nutrition Group, Danish Epidemiology Science Centre, Statens Serum Institut, Copenhagen, Denmark, ³Obesity Prevention Program, Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, MA, USA

Background: Recent evidence suggests that maternal supplementation of folic acid during pregnancy may play a role in the development of wheezing and asthma among offspring, potentially through epigenetic mechanisms.

Objective: We examined associations of maternal prenatal intake of folic acid supplements and dietary folate with wheeze and recurrent wheeze among

offspring at age 18 months in the Danish National Birth Cohort.

Methods: We estimated maternal intake of folic acid via supplements and dietary folate ($n=54,440$) using a validated FFQ completed in mid-pregnancy. We defined wheeze as a positive maternal report of child wheezing on either the 6 or 18 month interview, and recurrent wheeze as ≥ 3 wheeze episodes with the first occurring before 15 months of life. We conducted logistic regression analyses controlling for potential confounders, and report here estimates for the highest vs. lowest quartiles.

Results: Of the 54,440 children, 14.2% ($n=7,703$) had wheezed and 3.0% ($n=1,619$) had recurrent wheezing by 18 months. Maternal intake of folic acid supplements was not associated with child wheezing (OR: 1.06, 95% CI: 0.93, 1.21) or recurrent wheezing (OR: 1.13, 95% CI: 0.88, 1.46). Similarly, dietary folate was not associated with wheezing (OR: 0.95, 95% CI: 0.87, 1.04) or with recurrent wheeze (OR: 0.90; 95% CI: 0.74, 1.08).

Conclusions: We found no association of maternal mid-pregnancy intake of folic acid supplements or dietary folate with wheezing in early childhood. Maternal folic acid status at conception may be more important in influencing child epigenetic imprinting and subsequent outcomes.

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METHIONINE REQUIREMENT IN PRESENCE OF CYSTEINE IN THE ENTERALLY FED TERM NEONATE

L. Huang¹, J.E. Schoonenboom¹, M. van Dongen¹, F. Maingay-de Groof¹, G.J. Voortman¹, C. Chen², Y. Huang³, J.B. van Goudoever¹

¹Neonatology, Erasmus MC – Sophia Children's Hospital, Rotterdam, The Netherlands, ²Neonatology, ³Gastroenterology, Children Hospital of Fudan University, Shanghai, China

Background: Experimental evidence of essential amino acid requirement in neonates is scanty. Recently, the branched chain amino acid requirements in term neonates were successfully determined using the indicator amino acid oxidation method. Methionine, an essential amino acid, can be used for protein synthesis, but serves as a precursor for homocysteine and cysteine as well. Current recommended total sulphur amino acid requirement for infants 0-1 months is 57 mg/kg/d (methionine

28, cysteine 29 mg/kg/d), which is based upon the content of human milk. Commercially available formulas provide a methionine intake of 45-80 mg/kg/d.

Aim: To quantify the requirement of methionine in presence of cysteine (91 mg/kg/d) in term neonates using the Indicator Amino Acid Oxidation method.

Methods: Fully enteral fed term infants received randomly graded intakes of methionine (3-59 mg/kg/d). Breath samples were collected for $^{13}\text{CO}_2$ during L-[1- ^{13}C]phenylalanine (indicator amino acid) infusion, measured by isotope ratio mass spectrometry and analysed by applying a biphasic regression crossover analysis.

Results: Twenty-five neonates (birth weight 3.23 ± 0.31 kg, gestational age 38.9 ± 1.1 wks) were studied at a mean postnatal age of 13 ± 7 d.

With increasing methionine intake, L-[1- ^{13}C]phenylalanine oxidation decreased ($r = -0.83$, $p < 0.01$). The mean requirement is determined at 38 mg/kg/d and the upper 95% confidence interval at 50 mg/kg/d (figure).

[figure]

Conclusion: Present recommendation for methionine requirement is too low, although most, but not all, formulas provide a population safe intake when 150 mL/kg/d is consumed.

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ABERRANT INFLAMMATORY SIGNALLING IN AUTISM

A.M.H. Young¹, E.C. Campbell², S. Lynch², G.H. Doherty², M.H. Dunn³, S.J. Powis²

¹School of Clinical Medicine, University of Cambridge, Cambridge, ²Bute Medical School, ³Department of Physics and Astronomy, University of St Andrews, St Andrews, UK

Introduction: Autism Spectrum Disorder (ASD) is characterized by self-absorption, a reduced ability to respond or communicate, and behavioural dysfunction. The condition has been recognised as having a strong inflammatory component. Post mortem brain samples have demonstrated the presence of neuroglia activation combined with inflammatory profiles within the cerebrospinal fluid (CSF), although little is known about the underlying molecular mechanisms initiating this process.

Methods: Age, sex and cause of death matched orbitofrontal cortex sections were donated by the Institute of Psychiatry, King's College London. Tissue micro-array was prepared by John's Hopkins University, Baltimore and obtained from the Autism Tissue Programme and the Harvard University Brain Bank.

Results: Tissues were analysed by immunoblotting for NF- κ B p65 expression. A significant 2-2.5 fold increase in NF- κ B expression was recorded in ASD tissue samples compared to matched tissues ($p=0.007$, $n=4,3$). Furthermore, this was found to be predominately within the cell nucleus, suggestive that it was in its active form. Cell specific staining of neurons, astroglia and microglia demonstrated an increased nuclear expression of NF- κ B in cells from autistic tissue where $89 \pm 3.0\%$ of microglia expressed the active form of the molecule compared to $34 \pm 1.25\%$ in matched controls ($p=0.002$, $n=4,3$). This interestingly corresponded with a fourfold increase in the number of microglia within the tissue itself.

Conclusions: This is the first time a pro-inflammatory signalling protein has been specifically identified to be up-regulated in ASD, indicating that it may be a potential therapeutic target for treatment of the inflammatory component of the disorder.