

## **Influences of the perinatal diet on maternal and child health in an obese world**

Maternal and child health is intrinsically linked. With accumulating evidence over the past two decades supporting the *Developmental origins of health and diseases* hypothesis, it is now widely recognised that nutrition in the first 1000 days sets the foundation for long-term health. Maternal diet before, during and after pregnancy can influence the developmental pathways of the fetus and lead to consequences for disease onset in the future child and adult.

While maternal and infant mortality rates (traditional indicators of maternal, infant and population health) have declined significantly in the past two decades, the growing burden of obesity and risk of chronic non-communicable diseases in women of reproductive age and children is on a rapid rise worldwide- in developed as well as developing countries. Globally, approximately 30–50% of women gain excessive weight during pregnancy, while the prevalence of gestational diabetes is approximately 17%, with a number of Asian countries, particularly Singapore, having a much higher prevalence of more than 20%. In children, the prevalence of overweight and obesity has also risen dramatically - 42 million children under the age of 5 were overweight or obese in 2013, with the co-occurrence of high blood pressure and adverse lipid profile in early ages.

A key contributory factor is malnutrition, which itself is a consequence of consuming poor quality diets. Typical diets in developed and developing countries are falling short of nutritional recommendations and differences in the nutrition and health landscape between both settings are becoming less distinct, making malnutrition a global health issue. Suboptimal macronutrient balance and micronutrient inadequacies can lead to undesirable maternal body composition and metabolism, these in turn impacting on the health of the mother and lead to longer –term health consequences in the infant, including metabolic and cognitive health.

My research work in the mother-offspring multi-ethnic cohort study in Singapore, the GUSTO (Growing Up in Singapore Towards healthy Outcomes) study, has contributed to this body of evidence over the past 10 years. In a country once devoid of data relating to maternal and infant diets in relation to health outcomes, this presentation will illustrate how nutritional epidemiological research through a birth cohort has illuminated the importance and urgency of maternal and child nutrition and health in a modern, industrialised setting. Evidence of the relationships of a number of critical nutrients, in combination with dietary patterns, for optimal maternal and child health will be presented. My journey, challenges and achievements in translating fundamental nutritional concepts to maternal and child research, and its application to national policies and programs will also be shared.

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