Medical Xpress

New study reports low consumption of whole grains by pregnant women in Singapore

September 15 2015

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Pregnancy leads to alterations in glucose metabolism, including gestational diabetes mellitus, a common health problem that increases the risk of a caesarean birth, and is associated with development of type 2 diabetes (T2D) in the mother and in her infant later in life.

Understanding the nutritional needs of mothers and infants and improving maternal and infant nutrition from pre-conception through the first 1000 days of life, are key focus areas of Nestlé research. In this context, Nestlé scientists, together with leading researchers of the international EpiGen Consortium performed a detailed assessment of whole-grain intake in pregnant women in Singapore, where the rate of gestational diabetes is among the highest in the world. The new study,

published in the *Asia Pacific Journal of Clinical Nutrition*, is the first comprehensive report of whole-grain intake in an Asian population, and in pregnant women. The results show that in the women studied wholegrain intake is well below recommended dietary guidelines.

Study of whole-grain intake

Previous studies have suggested that a diet rich in whole grains improves glucose metabolism and can help reduce the risk of T2D in at-risk populations. The present study provided insight into whole-grain intake among pregnant Singaporean women, by performing a retrospective cross sectional study on expectant mothers from the Growing Up in Singapore Towards healthy Outcomes (GUSTO) mother-offspring cohort study, which aims to investigate the role of developmental factors in early life on the onset of metabolic diseases later in life. Whole-grain intake was based on dietary recall data and on plasma biomarkers in 998 and 100 pregnant women respectively. The results showed that only 30% of the women reported eating any whole grains at all. Moreover, in these women, the average daily intake of 23.6 g was below the amount of whole grain recommended by the Singapore Health Promotion Board. This low intake was further confirmed by the low plasma concentrations of alkylresorcinols, a biomarker of whole- grain intake.

What can be done?

Encouraging pregnant women to replace refined grains (e.g. white bread, white rice) with whole grains (e.g. wholemeal bread, brown rice, whole-wheat biscuits) in their diet and to increase their overall intake of whole grains, may help increase consumption to levels recommended by the authorities and enable an increased intake of dietary fibre, betaine, vitamins E, B1, B2, B6 and folate, and of minerals such as magnesium, selenium and zinc, all of which are considered to have a positive impact

on foetal development. To achieve this, the development and greater availability of whole-grain products may also be beneficial. While there is some evidence to suggest that whole-grain enriched diets improve glucose tolerance in women during pregnancy, more studies are needed to demonstrate whether this promising approach could help reduce the incidence of gestational diabetes and have a beneficial impact on maternal and infant health outcomes.

Provided by Agency for Science, Technology and Research (A*STAR), Singapore

Citation: New study reports low consumption of whole grains by pregnant women in Singapore (2015, September 15) retrieved 6 May 2024 from https://medicalxpress.com/news/2015-09-consumption-grains-pregnant-women-singapore.html