

Low iodine intakes in U.K. pregnant women

The following are excerpts from an interview by the Nutrition Society with Dr. Sarah Bath and Prof. Margaret Rayman of the University of Surrey on their recent paper in the *British Journal of Nutrition* (Bath SC, et. Br J Nutr. 2014 Jan 7:1-10. [Epub ahead of print]).

Why are we concerned about iodine status in pregnancy?

Iodine, as a component of the thyroid hormones, is required for brain development, particularly in the fetus, therefore an adequate intake of iodine is very important during pregnancy. The WHO iodine requirement for pregnant women is nearly double that of non-pregnant adults (250 vs. 150 µg/day). While it is well known that severe iodine deficiency in pregnancy can lead to impaired brain development, at the extreme resulting in cretinism, even mild-to-moderate iodine deficiency in UK pregnant women has been associated with reduced cognitive scores in their children.

Do we get enough iodine in the UK?

Based on a national survey of schoolgirls in 2009, the UK is now classified as mildly iodine deficient by the WHO. Despite the importance of adequate iodine intake during pregnancy, there are relatively few studies of iodine status in UK pregnant women, and no data have been collected on iodine status in pregnant women living in the South East of the UK.

What did we do in our study?

We recruited 100 pregnant women at 12 weeks' gestation from the Royal Surrey County Hospital. Women provided a spot-urine sample for the measurement of iodine status; urinary iodine excretion is considered to be a good biomarker of iodine status and is used to estimate status in a population.

We estimated 24-hr iodine excretion using urinary creatinine concentration (which takes the dilution of the urine sample into account) to explore relationships between iodine status and dietary intake; women completed a short food-frequency questionnaire that collected data on intake of iodine-rich foods.



What did we find?

According to WHO criteria, the women were classified as mildly-to-moderately iodine deficient; the median urinary iodine concentration, at 85.3 µg/L, is considerably below the WHO cut-off for adequacy of

150 µg/L. Furthermore, the estimated 24-hr iodine excretion value was much lower than would have been expected if women had been meeting the WHO requirement of 250 µg/day. This, together with studies showing iodine deficiency in pregnant women in other regions of the UK, raises concern for the brain development of UK babies.

Of the dietary components that we investigated, intake of milk was the strongest predictor of maternal iodine status, echoing results from other studies that show milk is the major source of iodine in the UK diet. Women who reported taking a prenatal supplement containing iodine (42%) had a significantly higher iodine status than women who did not use such a supplement. It is important to note that not all prenatal supplements in the UK contain iodine.

Where can women of childbearing age get more information on iodine?

Our findings suggest that women should be given advice about iodine before and during pregnancy. In association with the British Dietetic Association, we have therefore produced an iodine food fact sheet.

What is the next step for this research?

This research needs to be repeated in other areas of the UK; a national survey of iodine status in pregnancy is needed to establish the full magnitude and spread of iodine deficiency in UK pregnant women.