



## THYROID AND PREGNANCY

# Higher iodine intake in the mother during pregnancy is associated with higher child IQ

### BACKGROUND

Thyroid hormones are important for growth and development. Iodine is a nutrient required to make thyroid hormones. Not enough iodine in the diet can result in lower thyroid hormones in the blood and can lead to hypothyroidism. In pregnancy, more iodine intake is needed to make thyroid hormones in both the mother and the baby. This is important for normal brain development in the baby. Very low levels of iodine in the mother during pregnancy have been associated with subsequent decreased child IQ and school performance. What is not known is whether low iodine levels before pregnancy have any effect on the baby. The goal of this study is to understand the importance of iodine nutrition before pregnancy. This study examines the relationship between iodine status in the mother before pregnancy and the subsequent brain function of the child.

### THE FULL ARTICLE TITLE

Robinson SM et al. Preconception maternal iodine status is positively associated with IQ but not with measures of executive function in childhood. *J Nutr* 2018; 148:959–966. PMID: 29767745.

### SUMMARY OF THE STUDY

This study followed women and their children in the United Kingdom and examined how iodine status in the mother affected their children overtime. For the study, 12,583 nonpregnant women, aged 20–34 years of age were interviewed and diet and lifestyle factors were assessed. Of those women, 3,158 became pregnant. These women

were followed through pregnancy and the children were followed until 6 to 7 years of age. Information collected before pregnancy included: height, weight, education, smoking status, and diet. Diet in the mother was also evaluated in early and late pregnancy, and iodine intake was calculated. A single spot urine sample was also collected from women at an average of 3.3 years before pregnancy to assess for iodine status and creatinine (a measure of how the kidney works). The Wechsler Abbreviated Scale of Intelligence (IQ test) was completed in 942 children ages 6 to 7. The final group included 654 mother-child pairs. Iodine status in the mother before pregnancy was not associated with gestational age at birth or with birth weight. Iodine status in the mother before pregnancy was positively associated with the child's IQ. Approximately 9% of women had a low urinary iodine levels before pregnancy and the IQ of their children was lower than women with higher urinary iodine levels before pregnancy.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Higher iodine intake in the mother before pregnancy is associated with an increased child IQ at 6 to 7 years of age. This study supports the link between low iodine status in the mother in pregnancy and poorer brain function in children as seen in other studies. This study highlights the importance of iodine nutrition prior to becoming pregnant. Further studies are needed to better understand the importance of low iodine status before pregnancy and the outcome on children.

— Priya Mahajan, MD

### ATA THYROID BROCHURE LINKS

Iodine Deficiency: <https://www.thyroid.org/iodine-deficiency/>

Pregnancy and Thyroid Disease: <https://www.thyroid.org/thyroid-disease-pregnancy/>





**THYROID AND PREGNANCY, continued**

**ABBREVIATIONS & DEFINITIONS**

**Iodine:** an element found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. Common foods high in iodine include iodized salt, dairy products, seafood and some breads.

**Hypothyroidism:** a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

