

**THYROID AND PREGNANCY****Low thyroid hormone during pregnancy may lower the child's math scores at 5 years of age****BACKGROUND**

Thyroid hormone is essential for normal development of the brain. This is especially important during early pregnancy, when the baby is entirely dependent on the mother's supply of thyroid hormone. It is clear that overt hypothyroidism, with high TSH and low thyroid hormone levels, in the mother during pregnancy has been associated with adverse pregnancy outcomes, including impaired brain development in their children. Some studies have shown that even mildly low thyroid hormone levels in the mother may result in abnormal brain development tests in their children. This study was done to see the effect of low thyroid hormone levels in pregnant women on their children's test scores in school at 5 years of age.

THE FULL ARTICLE TITLE

Noten AM et al Maternal hypothyroxinemia in early pregnancy and school performance in 5-year-old offspring. *Eur J Endocrinol* 2015 Aug 25 [Epub ahead of print].

SUMMARY OF THE STUDY

This was a study of mothers and their infants participating in the Amsterdam Born Children and their Development (ABCD) study. Thyroid blood tests in the mothers were collected at the last part of the first trimester and their child's school math and language test results were recorded at age 5 years. From the original group of 8,266 pregnant women who enrolled in the study, there were complete information for only 1,196 of these, which was the sample size used to report the results.

The researchers reported that the pregnant women whose thyroid hormone levels were in the lowest 10% tended to be more overweight, had less education, were

of non-Western ethnicity, were smokers during their pregnancy, had high blood pressure and had symptoms of depression. These women had children who had a 1.6 times increased risk of poor math scores at age 5. There were no significant findings related to mother's thyroid blood levels and their children's language test results.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study supports, in part, other studies that have also shown that low thyroid hormone levels during pregnancy may affect children's brain development and function, including abnormal tests of language, reaction times, and IQ scores. The study is limited by the inability to study the original full group of pregnant women, and the conclusions suggest that the results may have been affected by this loss of some participants.

The option of whether to test women during pregnancy for abnormal thyroid hormone levels in the blood has been controversial, as not all studies have shown poor outcomes and there are costs associated with such testing. Further studies are needed to help answer this question, preferably using large diverse and multiethnic groups of women who have thyroid blood testing done as early in pregnancy as possible and with complete, longterm neurological follow up of their children.

— Angela M. Leung, MD, MSc

ATA THYROID BROCHURE LINKS

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

Hypothyroidism: <http://www.thyroid.org/hypothyroidism>

ABBREVIATIONS & DEFINITIONS

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

Overt Hypothyroidism: clear hypothyroidism an increased TSH and a decreased T₄ level. All patients

with overt hypothyroidism are usually treated with thyroid hormone pills.

TSH: thyroid stimulating hormone — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.