



THYROID AND PREGNANCY

Selenium supplementation during pregnancy

BACKGROUND

Selenium is a mineral known to be involved in the regulation of immune and thyroid function. Selenium is important for thyroid function as the major enzyme that activates thyroid hormone contains selenium. Autoimmune thyroid disease is the most common cause of hypo- and hyperthyroidism and is characterized by positive anti-thyroid antibodies, most commonly anti-TPO antibodies. People with high anti-TPO antibodies are at increased risk of developing hypothyroidism. Women with positive TPO antibodies have been shown to have an increased risk of pregnancy complications, including miscarriage and preterm labor. Researchers have been interested in determining whether reducing TPO antibody levels during pregnancy could improve pregnancy outcomes. Selenium supplementation has been shown in some studies to decrease TPO antibody levels and in one study selenium use during pregnancy decreased TPO antibodies and reduced the risk of thyroid function abnormalities after pregnancy. This study sought to determine whether supplementation with a lower dose of selenium in pregnant women would show similar findings. The current study examined the effect of selenium supplementation on TPO antibody levels and thyroid function in pregnant women.

THE FULL ARTICLE TITLE

Mao J et al. Effect of low-dose selenium on thyroid autoimmunity and thyroid function in UK pregnant women with mild-to-moderate iodine deficiency. *Eur J Nutr.*, 2014 Dec 19. [Epub ahead of print].

SUMMARY OF THE STUDY

This study was part of the SPRINT Study (Selenium in PRenancy INTervention), which is a study of pregnant women treated with either no selenium or selenium 60 micrograms per day starting at 12-14 weeks of pregnancy and continuing through delivery. These investigators examined the effect of selenium supplementation

on thyroid function tests (TSH and thyroid hormone levels) as well as TPO antibody levels during pregnancy. A total of 230 women were included in the study, with 115 women receiving selenium. Selenium use did not change TPO antibody levels during pregnancy. Overall, TSH increased and free T4 decreased during pregnancy. They analyzed the results comparing women who were TPO antibody positive or negative. Women with positive TPO antibodies had higher TSH values than those who were antibody negative and showed reduced TSH and free T4 levels during pregnancy with selenium treatment compared to women who took the placebo. Unlike the earlier study, this study did not show that selenium use reduced TPO antibody levels during pregnancy. This study differed from the earlier study in that it used a lower dose of selenium in a smaller study group of women who tended to be more iodine deficient.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The authors concluded that selenium in low doses did not alter TPO antibody levels but altered thyroid function, primarily reducing free T4 levels, in women with positive TPO antibodies. The long term effects of this are unknown.

This study is important for patients in that it demonstrates that additional research on the role of selenium supplementation during pregnancy is needed and that routine addition of selenium supplements during pregnancy cannot be recommended at this time. Future studies are needed to draw conclusions about the effect of selenium on thyroid function, thyroid antibody levels and outcomes during pregnancy.

— Whitney Woodmansee, MD

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

Autoimmune thyroid disease: a group of disorders that are caused by antibodies that get confused and attack the thyroid. These antibodies can either turn on the

thyroid (Graves' disease, hyperthyroidism) or turn it off (Hashimoto's thyroiditis, hypothyroidism).



THYROID AND PREGNANCY, continued

TPO antibodies: these are antibodies that attack the thyroid instead of bacteria and viruses, they are a marker for autoimmune thyroid disease, which is the main underlying cause for hypothyroidism and hyperthyroidism in the United States.

Selenium: a mineral found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. It is needed in small amounts by the body.

Thyroid Awareness Monthly Campaigns

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for Bravelets™ will be donated to the ATA. The month of March is **International Thyroid Awareness Month** and a bracelet is available through the [ATA Marketplace](#) to support thyroid cancer awareness and education related to thyroid disease.

