



## HYPOTHYROIDISM

### Thyroid function, cholesterol levels, and heart disease

#### BACKGROUND

The risk for developing heart disease is higher in individuals with certain risk factors, which include high cholesterol, high blood pressure, and diabetes. Thyroid hormone has clear effects on the heart and on cholesterol levels. Patients with hyperthyroidism have an increased risk for irregular heart rhythms (atrial fibrillation) while patients with hypothyroidism have higher cholesterol levels. Because of this, there have been several studies suggesting potential associations between mild thyroid problems and heart problems. However, whether mild hypothyroidism or mild hyperthyroidism may be related to cardiovascular disease remains uncertain. This study was done to assess the associations between mild hypothyroidism or mild hyperthyroidism and common risk factors for heart disease such as cholesterol levels, blood pressures, and diabetes and events such as a heart attack and stroke.

#### THE FULL ARTICLE TITLE

Martin SS et al. Thyroid Function, Cardiovascular Risk Factors, and Incident Atherosclerotic Cardiovascular Disease: The Atherosclerosis Risk in Communities (ARIC) Study. *J Clin Endocrinol Metab.* 2017 Jun 12. doi: 10.1210/jc.2017-00986. [Epub ahead of print]

#### SUMMARY OF THE STUDY

The study examined data from the Atherosclerosis Risk in Communities (ARIC) Study, a group of men and women from the general U.S. population without prior known heart attack, stroke, or heart failure. Collected blood drawn in 1990-1992 was measured for thyroid function tests to determine whether individuals had normal

thyroid function, hypothyroidism, or hyperthyroidism. If hypothyroidism or hyperthyroidism was found, it was categorized as either mild or moderate/severe.

From over 11,000 individuals (average age 57 years, 58% women, 76% Caucasian), 12% had either hypothyroidism or hyperthyroidism. Only 5% were taking a cholesterol-lowering medication. The researchers found that hypothyroidism, particularly if it was moderate/severe, was associated with increased cholesterol levels. However, neither hypothyroidism nor hyperthyroidism was associated with increased blood pressure, diabetes, heart attacks, or strokes.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In this study drawn from a large adult sample of the U.S. general population, hypothyroidism was associated with higher cholesterol levels, particularly in those with more moderate or severe hypothyroidism. However, even though having higher cholesterol is a cardiovascular disease risk factor, there were no significant differences in the proportions of individuals who had heart attacks or strokes based on thyroid function alone.

— Angela M. Leung, MD, MSc

#### ATA THYROID BROCHURE LINKS

Hyperthyroidism (Overactive): <https://www.thyroid.org/hyperthyroidism/>

Hypothyroidism (Underactive): <https://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.

**Hyperthyroidism:** a condition where the thyroid gland is overactive and produces too much thyroid hormone. Hyperthyroidism may be treated with antithyroid meds (Methimazole, Propylthiouracil), radioactive iodine or surgery.

**Lipids:** the general term used to describe fat molecules in the blood. Examples of blood lipids include cholesterol, HDL ("good") cholesterol, LDL ("bad") cholesterol and triglycerides.