



HYPOTHYROIDISM

Obese women with hypothyroidism treated with levothyroxine have a reduced energy expenditure

BACKGROUND

It is well known that thyroid hormone regulates some aspects of our metabolism. When thyroid levels are high (hyperthyroidism), our metabolism increases, we burn more calories and tend to lose weight. When thyroid levels are low (hypothyroidism), our metabolism slows down, we burn less calories and tend to gain weight. Once thyroid hormone levels return to normal after treating these 2 conditions, metabolism returns to normal.

One of the ways to measure metabolism is to look at the energy our body spends at rest. This is called resting energy expenditure. A previous small study has suggested that the resting energy expenditure is lower in patients with hypothyroidism even if they are treated with levothyroxine and their thyroid hormone levels are in the normal range. This study was done to determine the resting energy expenditure in a group of obese women with hypothyroidism attending a bariatric clinic

THE FULL ARTICLE TITLE

Muraca E et al 2020 Resting Energy Expenditure in Obese Women with Primary Hypothyroidism and Appropriate Levothyroxine Replacement Therapy. *J Clin Endocrinol Metab.* Apr 1;105.

SUMMARY OF THE STUDY

This study enrolled 649 obese women (body mass index (BMI) >30 kg/m²) attending a bariatric surgery clinic in Monza, Italy. Of these women, 564 (average age 44)

had no history of thyroid problems, while 85 had a past history of hypothyroidism and were currently treated with levothyroxine (average age 49). Both groups had serum TSH levels within the laboratory reference range (0.4-4.0 mU/L). Resting energy expenditure was measured and eating behavior and physical activity were assessed by questionnaires during a single visit to the clinic.

The hypothyroid group on levothyroxine had slightly higher levels of physical activity and lower levels of insulin resistance. The resting energy expenditure was 6% lower in this group compared to the group without hypothyroidism. There was no correlation between resting energy expenditure and TSH levels in either group. There were no differences between the two groups in body mass index (BMI).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Obese hypothyroid women with normal TSH levels have slightly but significantly lower REE than obese women who were not hypothyroid. Even though the energy expenditure was lower in the group that had hypothyroidism and were treated with levothyroxine, their BMI was unaffected as compared to the group without hypothyroidism. While interesting, more studies are needed before changing current recommendations for weight management in patients with hypothyroidism.

—Vibhavasu Sharma, MD, FACE

ATA THYROID BROCHURE LINKS

Hypothyroidism (Underactive): <https://www.thyroid.org/hypothyroidism/>

Thyroid Hormone Treatment: <https://www.thyroid.org/thyroid-hormone-treatment/>

Thyroid and Weight: <https://www.thyroid.org/thyroid-and-weight/>





HYPOTHYROIDISM, continued

ABBREVIATIONS & DEFINITIONS

Body-mass index (BMI): a standardized measure of obesity calculated by dividing the weight in kilograms by the square of the height. A normal BMI is 18.5-24.9, overweight is 25-30 and obese is >30.

Levothyroxine (T4): the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ and generic preparations.

Thyroid hormone therapy: patients with hypothyroidism are most often treated with Levothyroxine in order

to return their thyroid hormone levels to normal. *Replacement therapy* means the goal is a TSH in the normal range and is the usual therapy. *Suppressive therapy* means that the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.

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