AMERICAN THYROID ASSOCIATION
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THYROID AND WEIGHT

Does extreme obesity affect thyroid hormone absorption?

BACKGROUND

There is a well-known association between thyroid hormone and weight. Hyperthyroid patients frequently lose weight while hypothyroid patients tend to gain weight. Many studies have found a direct correlation between obesity and TSH levels within the normal range in apparently healthy individuals. Further, it has been shown in other studies that obese individuals have higher levels of both TSH and the thyroid hormones T_4 and T_3 than in non-obese individuals. This study continued to examine the relationship between obesity and the thyroid by examining the absorption of thyroid hormone in obese and non-obese individuals.

THE FULL ARTICLE TITLE

Michalaki MA et al. Impaired pharmacokinetics of levothyroxine in severely obese volunteers. Thyroid. March 21, 2011 [E-pub ahead of print]. doi: 10.1089/thy.2010.0149.

SUMMARY OF THE STUDY

A total of 16 men and 22 women who were morbidly obese were compared to 24 non-obese individuals. All individuals had thyroid hormone and TSH levels in the normal range and none had a prior history of thyroid disease. On an empty stomach, all individuals were given 600 micrograms of levothyroxine by mouth and then blood was drawn at various intervals. The results showed that the levothyroxine was absorbed significantly worse in the obese individuals than in the non-obese individuals.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that absorption of levothyroxine is impaired in morbidly obese individuals. This suggests that obese hypothyroid patients may require higher doses of levothyroxine than non-obese patients.

— Heather Hofflich, DO

ATA THYROID BROCHURE LINKS

Thyroid and Weight: http://thyroid.org/patients/patient_brochures/weight.html

Thyroid Hormone Treatment: http://thyroid.org/patients/patient_brochures/hormonetreatment.html

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.

Thyroxine (T_4): the major hormone secreted by the thyroid gland. Thyroxine is broken down to produce Triiodothyronine which causes most of the effects of the thyroid hormones.

Triiodothyronine (T_3): the active thyroid hormone, usually produced from thyroxine.

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.

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