



## HYPOTHYROIDISM

### Probiotic substances do not impair oral levothyroxine intestinal absorption

#### BACKGROUND

Hypothyroidism occurs when the thyroid gland fails to make enough thyroid hormone for the needs of the body. Thyroxine, the major hormone produced by the thyroid gland, can be taken orally in the form of levothyroxine to treat hypothyroidism. Many medications, foods and supplements can affect the absorption of levothyroxine from the intestine. If these items are taken at the same time or close to the time of levothyroxine intake, the amount of levothyroxine taken up into the body is often decreased, leading to inadequate treatment of the hypothyroidism and frequent changes in the levothyroxine dose. Calcium and iron pills are the most common examples of this. Because of the possibility of interfering with absorption, it is generally recommended that levothyroxine be taken by itself on an empty stomach. However, this can be challenging for many patients, so it is important to identify those medications and supplements that to directly affect levothyroxine absorption.

Probiotics are live bacteria, available over-the-counter in pharmacies and health stores, and are thought to limit the growth of harmful bacteria in intestine. Their use as digestive supplements has markedly increased in recent years. This study is done to assess whether probiotics may affect absorption of levothyroxine.

#### THE FULL ARTICLE TITLE

Spaggiari G, et al. Probiotics ingestion does not directly affect thyroid hormonal parameters in hypothyroid patients on levothyroxine treatment. *Front Endocrinol* 8:316. 2017 PMID: 29184537.

#### SUMMARY OF THE STUDY

In this study, 80 subjects were randomly assigned to either take oral levothyroxine with probiotics or alone.

The types of probiotics in this study were Lactobacilli and Bifidobacteria. Only hypothyroid adults who were taking the same levothyroxine dose for the past 6 months and had normal thyroid hormone levels on this dose were selected. Individuals with any disorder causing absorption problems in the intestine or use of any other medication or supplement which could potentially alter levothyroxine absorption were excluded.

The participants in the study were divided into two groups: 39 individuals took probiotics 2 hours after taking Levothyroxine and 41 individuals only took levothyroxine. Both groups were followed for 4 months. Probiotics were taken only for the first two months of the study.

Thyroid stimulating hormone (TSH) and thyroid hormone levels were measured every 4 weeks during the study period. There was no difference between the two groups at any point of time during the study.

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

This study showed that the use of particular probiotics (Lactobacilli and Bifidobacteria) if taken two hours after Levothyroxine, does not cause any change in TSH and thyroid hormone level.

Because the use of probiotics as a supplement is very popular and hypothyroidism is also a common medical problem, it was important to investigate the potential effect of probiotics on Levothyroxine absorption. It is important to mention some of the limitations of this study; for example, intake of probiotics at the same time with Levothyroxine was not studied and only the above-mentioned probiotics were investigated.

— Shirin Haddady, MD

#### ATA THYROID BROCHURE LINKS

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

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





## HYPOTHYROIDISM, continued

### ABBREVIATIONS & DEFINITIONS

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

**Levothyroxine (T<sub>4</sub>):** the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Levoxyl™, Tyrosint™ and generic preparations.

**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.

**Probiotics:** live organisms, usually specific strains of bacteria, that directly add to the population of healthy microbes in your gut and are thought to limit the growth of harmful bacteria in intestine. Lactobacilli and Bifidobacteria are examples of probiotics available over-the-counter in pharmacies and health stores. Yogurt, sauerkraut, kombucha and kimchi are foods containing probiotics.

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