

# Clinical Thyroidology® for the Public



AMERICAN THYROID ASSOCIATION  
Optimal Thyroid Health for All



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#### Who gains the most weight after hyperthyroidism treatment?

People with hyperthyroidism often lose weight before treatment because the thyroid gland makes too much thyroid hormone, which speeds up metabolism. After treatment, many patients regain lost weight, and some may gain more than the weight they had lost and become overweight or develop obesity. This study was done to better understand weight changes after treatment and find out which factors make some people more likely to gain a lot of weight after treatment of hyperthyroidism.

Kyriacou A et al. Severity of thyrotoxicosis is a risk factor for excessive weight gain in treated hyperthyroidism. *Eur Thyroid J* 2025;14(3):e240373; doi: 10.1530/ETJ-24-0373. PMID: 40238086.

### THYROID CANCER.....5

#### Do CT scans increase the risk of thyroid cancer?

CT scans are helpful, but they give off radiation, which could potentially damage cells and lead to cancer. The thyroid gland is sensitive to radiation and many CT scans include imaging the neck where the thyroid gland is located. In this study, doctors wanted to find out if more CT scans mean more risk of thyroid cancer, especially in children and adults who get scans of the head, neck, or chest.

Smith-Bindman R et al. Projected lifetime cancer risks from current computed tomography imaging. *JAMA Intern Med* 2025;185:710-719.

### HYPOTHYROIDISM .....6

#### Does treatment of hypothyroidism depend on your age, sex, or insurance status?

Hypothyroidism had previously been estimated to occur in 4.6% of population in the United States. However, recent studies have reported that hypothyroidism is now diagnosed much more frequently, up to 11.7% of the populations studied. With the increase in the number of patients with hypothyroidism in the U.S., this study aimed to describe treatment patterns of hypothyroidism across the United States using NHANES and the Optum Claims Database, a database of commercial insurance claims.

Tessnow AH et al. Treatment of hypothyroidism by age and sex in the United States: a NHANES and Optum Claims data analysis. *Endocr Pract* 2025;31(3):359-365; doi: 10.1016/j.eprac.2024.12.004. PMID: 39667670.

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### Quality of life in patients with low-risk thyroid cancer undergoing active surveillance

Recent data has shown that small thyroid cancers are at a very low risk for growing and spreading outside of the thyroid. Because of this, the option of active surveillance is becoming a more common option for thyroid cancer patients. This study examined the factors driving treatment decisions and compares quality-of-life outcomes over time.

Kim MJ, et al. Comparison of patient-reported outcomes between active surveillance and immediate lobectomy in patients with low-risk papillary thyroid microcarcinoma: initial findings from the KoMPASS cohort. *Thyroid* 2024;34(11):1371-1378; doi: 10.1089/thy.2024.0264. PMID: 39287055.

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### Should there be personalized reference intervals for thyroid function tests?

The normal ranges of thyroid function tests (TFTs) are generated based on the distributions of results from a healthy population without thyroid problems. One concern about the interpretation of TFT results is that they are a “one-size-fits-all” model, meaning that the normal ranges are applied equally during all ages of life regardless of sex, and race, all factors that are known to alter TFTs. This study examines 2 population-based TFT data sets with the aim of creating more individualized TFT reference ranges and determining their expected effects on the diagnosis of abnormal thyroid status.

Li Q, et al. Thyroid function reference intervals by age, sex, and race: a cross-sectional study. *Ann Intern Med*. Epub 2025 May 6; doi: 10.7326/ANNALS-24-01559. PMID: 40324200.

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### TransCon PTH: a promising treatment for chronic hypoparathyroidism

Hypoparathyroidism is a condition marked by low calcium levels in the blood, usually caused by surgery involving the thyroid or head and neck, where the parathyroid glands may be accidentally damaged or removed. TransCon PTH (palopegteriperatide) is a new treatment for chronic hypoparathyroidism. The current study evaluated the effectiveness and safety of TransCon PTH in patients with chronic hypoparathyroidism.

Clarke BL, et al. Efficacy and safety of TransCon PTH in adults with hypoparathyroidism: 52-week results from the phase 3 PaTHway trial. *J Clin Endocrinol Metab*. Epub 2024 Oct 8.

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## Editor's Comments

Welcome to another issue of *Clinical Thyroidology for the Public*! In this journal, we will bring to you the most up-to-date, cutting edge thyroid research. We also provide even faster updates of late-breaking thyroid news through X (previously known as Twitter) at [@thyroidfriends](https://twitter.com/thyroidfriends) and on [Facebook](https://www.facebook.com/thyroidfriends). Our goal is to provide patients with the tools to be the most informed thyroid patient in the waiting room. Also check out our friends in the [Alliance for Thyroid Patient Education](https://www.allianceforthyroidpatienteducation.org). The [Alliance](https://www.allianceforthyroidpatienteducation.org) member groups consist of: the *American Thyroid Association*®, *Bite Me Cancer*, *the Graves' Disease and Thyroid Foundation*, *the Light of Life Foundation*, *MCT8 – AHDS Foundation*, *ThyCa: Thyroid Cancer Survivors' Association*, and *Thyroid Federation International*.

We invite all of you to join our [Friends of the ATA](https://www.thyroid.org/donate) community. It is for you that the American Thyroid Association® (ATA®) is dedicated to carrying out our mission of providing reliable thyroid information and resources, clinical practice guidelines for thyroid detection and treatments, resources for connecting you with other patients affected by thyroid conditions, and cutting edge thyroid research as we search for better diagnoses and treatment outcomes for thyroid disease and thyroid cancer. We thank all of the *Friends of the ATA* who support our mission and work throughout the year to support us. We invite you to help keep the ATA® mission strong by choosing to make a donation that suits you — it takes just one moment to give online at: [www.thyroid.org/donate](https://www.thyroid.org/donate) and all donations are put to good work. The ATA® is a 501(c)3 nonprofit organization and your gift is tax deductible.

### September is [Thyroid Cancer Awareness Month](https://www.thyroid.org/donate).

**In this issue, the studies ask the following questions:**

- Who gains the most weight after hyperthyroidism treatment?
- Do CT scans cause thyroid cancer?
- Does treatment of hypothyroidism depend on your age, sex, or insurance status?
- Does active surveillance of small, low-risk thyroid cancer affect a patient's quality of life?
- Should there be personalized reference intervals for thyroid function tests?
- Is TransCon PTH a safe and effective treatment for hypoparathyroidism?

We welcome your feedback and suggestions. Let us know what you want to see in this publication. I hope you find these summaries interesting and informative.

— Alan P. Farwell, MD



## HYPERTHYROIDISM

### Who gains the most weight after hyperthyroidism treatment?

#### BACKGROUND

People with hyperthyroidism often lose weight before treatment because the thyroid gland makes too much thyroid hormone, which speeds up metabolism. This is not a healthy weight loss since it also involves losing muscle and bone. After treatment, many patients regain the lost weight, and some may gain more than the weight they had lost and become overweight or develop obesity. Past studies reported possible risk factors for weight gain, such as having more severe hyperthyroidism with higher thyroid hormone levels, having Graves' disease (the most common cause of hyperthyroidism), getting treatment with radioactive iodine or thyroid surgery, and having low thyroid hormone levels for some time during or after treatment. However, the results were not always similar in different studies. Earlier research also focused mainly on weight at diagnosis and final weight after treatment.

This study was done to better understand weight changes after treatment and find out which factors make some people more likely to gain a lot of weight after treatment of hyperthyroidism.

#### THE FULL ARTICLE TITLE

Kyriacou A et al. Severity of thyrotoxicosis is a risk factor for excessive weight gain in treated hyperthyroidism. *Eur Thyroid J* 2025;14(3):e240373; doi: 10.1530/ETJ-24-0373. PMID: 40238086.

#### SUMMARY OF THE STUDY

Researchers reviewed patient information from three hospitals in Cyprus. The study included adults who were treated for hyperthyroidism, had at least 6 months of follow-up, and had at least one weight recorded between 6 and 36 months after diagnosis. People who had very mild hyperthyroidism, thyroid cancer, or reversible causes of hyperthyroidism like thyroiditis, pregnancy, weight loss surgery, or conditions or medicines that can affect the weight were excluded.

The researchers looked for factors linked to gaining too much weight after treatment for hyperthyroidism. The factors they studied were age, sex, ethnicity, smoking, disease-related weight loss, body mass index (BMI), thyroid hormone levels, hypothyroidism episodes, treatment type (antithyroid drugs, surgery, or radioactive iodine therapy), cause of hyperthyroidism (Graves' disease or other), and timing of peak weight. Weight at diagnosis was measured at the first clinic visit. Patients also reported how much weight they had lost since their symptoms began. Adding this to the diagnosis weight gave an estimate of their baseline weight. Peak weight was the highest recorded weight after treatment and during follow-up. Peak percentage weight gain (PWG) was calculated to show how much weight a person gained at their highest point compared to their weight at diagnosis. Excessive weight gain meant a PWG of 10% or more. Patients were split into two groups based on PWG. Group A had a PWG of 10% or more, and Group B had less than 10%. The 10% cutoff was based on earlier studies showing that about half of the patients gained at least this much weight.

The study included 110 patients with an average age of 49 years and an average follow-up of 24 months. About two-thirds were women, and 84% were Cypriot. Most patients (86%) were treated with medications alone, 11% had surgery after medications, and 3% had radioactive iodine treatment with medications. About 30% had hypothyroidism before reaching their peak weight. Overall, 53% of patients gained at least 10% more weight than at diagnosis. Patients with higher free T4 levels and greater weight loss before treatment were more likely to gain more weight. On average, patients gained about 8.4 kg at their highest weight and 7.3 kg by their last follow-up. Graves' disease was more common in the group with higher weight gain. Men lost and regained more weight than women, but their percentage weight gain was similar.



## HYPERTHYROIDISM, continued

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that many people gain weight after treatment for hyperthyroidism, especially if they lost a lot of weight before treatment, had more severe thyroid disease, or had Graves' disease. While the risk of weight gain can seem discouraging, treating hyperthyroidism is very important to prevent serious complications. These

findings give patients and physicians the chance to plan. The best way to stay in control is to be aware of the risk and take early steps. Talking about ways to prevent weight gain, healthy eating, physical activity, and regular monitoring can help manage weight changes and should be part of the treatment plan from the start.

— Ebru Sulanc, MD

### ATA THYROID BROCHURE LINKS

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

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

### ABBREVIATIONS & DEFINITIONS

**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.

**Graves' disease:** the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and stimulate it.

**Thyroiditis:** inflammation of the thyroid, most commonly caused by antibodies that attack the thyroid as seen in Hashimoto's thyroiditis and post-partum thyroiditis. It can also result from an infection in the thyroid.

**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.

**Thyroxine (T4):** the major hormone produced by the thyroid gland. T4 gets converted to the active hormone T3 in various tissues in the body.

**Radioactive iodine (RAI):** this plays a valuable role in diagnosing and treating thyroid problems since it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of thyroid cancer and with an overactive thyroid.

**Antithyroid drugs:** Methimazole and Propylthiouracil (PTU) block the thyroid from making thyroid hormone. These drugs are used to treat hyperthyroidism, especially when it is caused by Graves' disease.



## THYROID CANCER

### Do CT scans increase the risk of thyroid cancer?

#### BACKGROUND

Doctors often use computerized tomography (CT) scans to help find problems inside the body. CT scans are helpful, but they give off radiation, which could potentially damage cells and lead to cancer. In the past, studies have suggested that CT scans may cause thousands of new cancers in the future. The number of CT scans people get has increased over time and so has the concern about their safety.

The thyroid gland is sensitive to radiation and many CT scans include imaging the neck where the thyroid gland is located. In this study, doctors wanted to find out if more CT scans mean more risk of thyroid cancer, especially in children and adults who get scans of the head, neck, or chest.

#### FULL ARTICLE TITLE:

Smith-Bindman R et al. Projected lifetime cancer risks from current computed tomography imaging. *JAMA Intern Med* 2025;185:710-719.

#### SUMMARY OF THE STUDY

This study looked at over 84 million CT scans done in the U.S. in 2023. It used a large database to figure out how

many cancers might happen in the future from radiation during those scans. The researchers paid close attention to how much radiation different body parts received. They found that about 7,000 future thyroid cancers could be caused by CT scan radiation. CT scans of the head, neck, chest, and cervical spine were the biggest contributors. Children were especially at risk. In fact, thyroid cancer was the most common cancer expected in kids after CT scans. Women were more likely than men to develop thyroid or lung cancer from CT scan radiation.

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

The study shows that CT scans—especially of the head, neck, and chest—can raise the chance of getting thyroid cancer, especially in children and women. Doctors should be careful about how often CT scans are used and should only order them when truly necessary. This is important for patients because if you’ve had a lot of CT scans, especially in the head or neck area, it might raise your risk for thyroid cancer later in life. Patients should tell their doctors about any past radiation exposure when discussing thyroid issues or nodules.

— Maria Brito, MD, ECNU

#### ATA THYROID BROCHURE LINKS

Thyroid Cancer (Papillary and Follicular): <https://www.thyroid.org/thyroid-cancer/>

#### ABBREVIATIONS & DEFINITIONS

**Computerized Tomography (CT) scan:** A test that uses X-rays to make detailed pictures inside the body.

**Radiation:** A form of energy that can come from X-rays; too much can damage cells.

**Papillary thyroid cancer:** the most common type of thyroid cancer. There are 4 variants of papillary thyroid cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).



## HYPOTHYROIDISM

# Does treatment of hypothyroidism depend on your age, sex, or insurance status?

### BACKGROUND

Hypothyroidism had previously been estimated to occur in 4.6% of population in the United States, based on the data from the 1988-1994 National Health and Nutrition Examination Survey (NHANES). NHANES periodically surveys and records health and nutritional status of the U.S. population from interviews, exams, and laboratory tests in a sample of adults and children. A study of more recent data from 2009-2010 and 2011-2012 cycles of the NHANES and from a U.S. commercial insurance claims database in 2019 reported that hypothyroidism is now diagnosed much more frequently, in 9.6% and 11.7% of the populations studied, respectively.

With the increase in the number of patients with hypothyroidism in the U.S., this study aimed to describe treatment patterns of hypothyroidism across the United States using NHANES and the Optum Claims Database, a database of commercial insurance claims.

### THE FULL ARTICLE TITLE

Tessnow AH et al. Treatment of hypothyroidism by age and sex in the United States: a NHANES and Optum Claims data analysis. *Endocr Pract* 2025;31(3):359-365; doi: 10.1016/j.eprac.2024.12.004. PMID: 39667670.

### SUMMARY OF THE STUDY

The researchers used thyroid function test results from 2009-2010 and 2011-2012 NHANES cycles and medical diagnosis and pharmacy prescription data from the Optum Claims Database from 2012-2019 to determine the number of adults diagnosed with hyperthyroidism and the number of those who were treated for hypothyroidism. The proportion of patients who were treated was calculated by dividing the number of the participants treated by the number of those diagnosed. The proportion of participants treated based on age, sex, and insurance status (private insurance or Medicare vs other or no insurance) were also calculated to assess potential differences in patterns of hypothyroidism treatment.

In the NHANES database, about 19 million participants (72% female) had hypothyroidism. Among these patients, 78.3% of women were treated while only 56.3% of men were treated. When divided by age, only 47.3% of women under 44 years of age were treated. About 21% of participants with hypothyroidism did not have insurance. Among the uninsured participants, only 57.3% of women and 26.4% of men were treated. When divided by age group, only 21.7% of women and 0% of men under the age of 44 years were treated.

In the 2012-2019 Optum Claims Database, approximately 2.2 million patients were diagnosed with overt hypothyroidism and all patients had insurance. More than 78% of these patients were treated, without significant differences between women and men and between younger and older patients.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Treatment of hypothyroidism in the United States based on data from national survey showed different patterns based on age, sex, and insurance status. Younger patients and male patients were less likely to be treated for hypothyroidism, especially those without insurance. Although the data from Optum claims database showed similar treatment rates across sex and age groups, there were clear differences in the treatment patterns from the NHANES database based on sex, age, and insurance status. The findings suggest that treatment of hypothyroidism does not differ significantly when patients have equal access to medical care, as in the case of the patients in the Optum Claims Database. On the other hand, participants in the NHANES database are selected at random from the general population of the United States and may reflect potential disparities in treatment access more accurately. The NHANES data suggested that younger and male patients, especially those who are uninsured, have far lower rates of treatment for overt hypothyroidism. It is also notable that the proportion of young women of



## HYPOTHYROIDISM, continued

reproductive age (< 44 years old) was low, especially in the uninsured. Given potential health consequences of untreated severe overt hypothyroidism in general population and in pregnant women, more awareness of importance of hypothyroidism treatment in younger and

male populations, as well as systematic improvement in treatment access to uninsured population may be needed to improve current state of hypothyroidism treatment in the United States.

— Sun Y. Lee, MD

### ATA THYROID BROCHURE LINKS

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.



## THYROID CANCER

# Quality of life in patients with low-risk thyroid cancer undergoing active surveillance

### BACKGROUND

Thyroid cancer is common and papillary thyroid cancer is the most common type of thyroid cancer. Fortunately, the prognosis of thyroid cancer is excellent due to effective treatments, usually beginning with surgery to remove part or all of the thyroid containing the cancer. Recent data has shown that small thyroid cancers, known as papillary thyroid microcarcinoma, are at a very low risk for growing and spreading outside of the thyroid. Because of this, the option of active surveillance, meaning the cancer is followed by regular ultrasound imaging as opposed to immediate thyroid surgery, is becoming a more common option for thyroid cancer patients.

One concern about active surveillance is whether living with a small, low risk thyroid cancer affects patient's quality of life as compared to removing the cancer by surgery. This study, part of the Korean Multicenter Prospective Cohort Study of Active Surveillance or Surgery (KoMPASS), examined the factors driving treatment decisions and compares quality-of-life outcomes over time.

### THE FULL ARTICLE TITLE

Kim MJ, et al. Comparison of patient-reported outcomes between active surveillance and immediate lobectomy in patients with low-risk papillary thyroid microcarcinoma: initial findings from the KoMPASS cohort. *Thyroid* 2024;34(11):1371-1378; doi: 10.1089/thy.2024.0264. PMID: 39287055.

### SUMMARY OF THE STUDY

This study was done in Korea. The patients with a diagnosis of low-risk thyroid cancer were divided into 2 groups: active surveillance or surgery (lobectomy). The study included approximately 1000 patients at multiple centers in Korea. More than 70% of the patients were women. Patients electing active surveillance reported higher incomes, smaller cancers and greater awareness of active surveillance. At the baseline the patients who have undergone active surveillance showed a better quality of life as compared to those undergoing surgery. However, at 12 months both groups reported similar quality of life. By 2 years there was no difference in the 2 groups in terms of quality of life.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that patient's age, size of the cancer and income levels influenced the patient's decision to choose active surveillance. However, the study demonstrated that despite an early advantage and quality of life for patients undergoing active surveillance, the long-term quality of life was similar in both groups.

—Vibhavasu Sharma, MD, FACE

### ATA THYROID BROCHURE LINKS

Thyroid Cancer (Papillary and Follicular): <https://www.thyroid.org/thyroid-cancer/>

Thyroid Surgery: <https://www.thyroid.org/thyroid-surgery/>





## THYROID CANCER, continued

### ABBREVIATIONS & DEFINITIONS

**Papillary thyroid cancer:** the most common type of thyroid cancer. There are 4 variants of papillary thyroid cancer: classic, follicular, tall-cell and noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP).

**Papillary microcarcinoma:** a papillary thyroid cancer smaller than 1 cm in diameter.

**Thyroidectomy:** surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

**Lobectomy:** surgery to remove one lobe of the thyroid.

**Active surveillance:** The practice of following a small, low-risk cancer with regular imaging studies and deferring surgery until the cancer grows or changes. This is compared to immediate surgery to remove the cancer.

SEPTEMBER

# Thyroid Cancer

*Awareness Month*

AMERICAN THYROID ASSOCIATION  
Optimal Thyroid Health for All

[www.Thyroid.org](http://www.Thyroid.org)



## THYROID FUNCTION TESTS

# Should there be personalized reference intervals for thyroid function tests?

### BACKGROUND

The thyroid gland produces the thyroid hormones thyroxine (T4) and triiodothyronine (T3). The production of these hormones is regulated by the pituitary hormone thyroid stimulating hormone (TSH). Measuring T4, T3 and TSH levels in the blood can determine if the thyroid is overactive (hyperthyroidism), underactive (hypothyroidism) or working normally. The normal ranges of T4, T3 and TSH, also known as thyroid function tests (TFTs), are generated based on the distributions of results from a healthy population without thyroid problems. Values that are measured in the lowest 2.5% and the highest 2.5% of the population are considered “abnormal” while the “normal” range is determined by the values in remaining 95% of the population. TFTs levels in the “abnormal” range usually indicates that the thyroid is not working normally and needs to be treated.

One concern about the interpretation of TFT results is that they are a “one-size-fits-all” model, meaning that the normal ranges are applied equally during all ages of life regardless of sex, and race, all factors that are known to alter TFTs. Such simplification may contribute to both overdiagnosis and underdiagnosis of thyroid diseases, particularly in subclinical cases, when the TSH is abnormal but the T4 and T3 levels are in the normal range.

This study examines 2 population-based TFT data sets with the aim of creating more individualized TFT reference ranges and determining their expected effects on the diagnosis of abnormal thyroid status.

### THE FULL ARTICLE TITLE

Li Q, et al. Thyroid function reference intervals by age, sex, and race: a cross-sectional study. *Ann Intern Med*. Epub 2025 May 6; doi: 10.7326/ANNALS-24-01559. PMID: 40324200.

### SUMMARY OF THE STUDY

This large-scale, cross-sectional study included 8308 adults from the U.S. NHANES (National Health and Nutrition Examination Survey) and 314,302 individuals from a multicenter Chinese health checkup registry. Individuals with known thyroid disease were excluded.

In this study, TSH levels increased, and T3 levels declined with increasing age, while T4 levels remained largely unchanged. Women exhibited higher T4 but lower T3 levels than men. Individuals categorized as White had higher TSH levels than Black or Hispanic people.

After applying personalized reference intervals based on age, sex and race as compared to the standard, fixed reference intervals, 48.5% of individuals initially categorized as having subclinical hypothyroidism (high TSH and normal T4 levels) and 31.2% of individuals initially categorized as having subclinical hyperthyroidism (low TSH and normal T4 levels) were reclassified as having normal thyroid function. This reclassification was particularly noted among older patients, women and White individuals. In the analysis of a separate data set from the Chinese survey, these patterns were found to be similar.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that standard reference ranges of TFTs may not adequately account for changes related to age, sex and race. Different population subgroups exhibited different TSH reference intervals, especially women and those of older age. In this study, the use of reference ranges personalized based on age, sex and race significantly altered disease classification and may prevent risks of overtreatment, particularly in elderly and female patients. These results suggest that patient-specific reference intervals will offer an important advance in individualized thyroid care when available.

— Alan P. Farwell, MD



## THYROID FUNCTION TESTS, continued

### ATA THYROID BROCHURE LINKS

Thyroid Function Tests: <https://www.thyroid.org/thyroid-function-tests/>

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

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

### ABBREVIATIONS & DEFINITIONS

**Thyroxine (T4):** the major hormone produced by the thyroid gland. T4 gets converted to the active hormone T3 in various tissues in the body.

**Triiodothyronine (T3):** 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.

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

**Subclinical Hypothyroidism:** a mild form of hypothyroidism where the only abnormal hormone level is an increased TSH. There is controversy as to whether this should be treated or not.

**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.

**Subclinical Hyperthyroidism:** a mild form of hyperthyroidism where the only abnormal hormone level is a decreased TSH.



## HYPOPARATHYROIDISM

### TransCon PTH: a promising treatment for chronic hypoparathyroidism

#### BACKGROUND

The parathyroid glands are usually 4 small, button-shaped glands located next to the thyroid in the neck, 2 on each side. They have nothing to do with the thyroid; they are just located next to the thyroid. They produce parathyroid hormone (PTH), which helps regulate calcium and phosphate levels in the body. When calcium levels decrease, PTH is turned on and draws calcium from the bones, prevents calcium from going out in the urine, and activates Vitamin D to help absorb calcium from the gut, returning calcium levels to normal. When the parathyroid glands don't make enough PTH, it leads to hypoparathyroidism—a condition marked by low calcium levels in the blood (hypocalcemia). Hypoparathyroidism can cause abnormal heart rhythms, weakened bones, kidney stones, and reduced kidney function. People may also experience symptoms such as muscle cramps, twitching, and difficulty thinking clearly. The most common cause of hypoparathyroidism is surgery, particularly surgery involving the thyroid or head and neck, where the parathyroid glands may be accidentally damaged or removed.

To maintain stable blood calcium levels, patients with hypoparathyroidism must take oral calcium supplements multiple times a day, along with a form of vitamin D called calcitriol. Despite this, calcium levels can fluctuate, requiring frequent blood tests and medication dose adjustment. The burden of managing these symptoms and treatment demands can also negatively impact one's quality of life.

TransCon PTH (palopegteriparatide) is a new treatment for chronic hypoparathyroidism. This medication is a long-acting form of parathyroid hormone given as a daily injection under the skin. It maintains steady levels of PTH in the blood, directly addressing the hormonal deficiency rather than just treating the symptoms of

low calcium. It should, in theory, remove the need for people with hypoparathyroidism to take calcium and vitamin D tablets.

The current study evaluated the effectiveness and safety of TransCon PTH in patients with chronic hypoparathyroidism

#### THE FULL ARTICLE TITLE

Clarke BL, et al. Efficacy and safety of TransCon PTH in adults with hypoparathyroidism: 52-week results from the phase 3 PaTHway trial. *J Clin Endocrinol Metab*. Epub 2024 Oct 8.

#### SUMMARY OF THE STUDY

This was a Phase 3 clinical trial to evaluate the safety and effectiveness of TransCon PTH in individuals with chronic hypoparathyroidism, most of whom (85%) acquired the condition after head and neck surgery. Trials like this one must be conducted before a drug can be approved for use. During the first 26 weeks, 82 participants were randomly assigned to receive either TransCon PTH (61 individuals) or a placebo (21 individuals). The trial then entered an open-label phase where all participants received TransCon PTH for another 26 weeks, resulting in a total follow-up period of 52 weeks.

The primary aim was to determine whether participants could stop taking calcium and active vitamin D supplements while maintaining normal blood calcium levels. Other outcomes included patient satisfaction, overall quality of life, safety, and changes in bone mineral density. Too much PTH can decrease bone density by taking too much calcium out of the bones.

Out of the 82 people who started the study, 78 were still taking part after 52 weeks. Of those, 74 (or 95%) no longer needed to take calcium and vitamin D



## THYROID NODULES, continued

supplements. People taking TransCon PTH said they felt better quickly, with improvements in their quality of life and overall well-being. While bone density did not increase with the drug, it also didn't get worse, apart from the slight decline that normally happens with age. About 53% of participants had side effects, but they were mild, and no one had to stop taking the medication because of them.

### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The authors conclude that TransCon PTH is a safe and effective treatment and could potentially have a positive impact on people living with chronic hypoparathyroidism, a condition that is very challenging to manage with current therapies.

— Phillip Segal, MD

### ATA THYROID BROCHURE LINKS

Thyroid Surgery: <https://www.thyroid.org/thyroid-surgery/>

### ABBREVIATIONS & DEFINITIONS

**Hypoparathyroidism:** low calcium levels due to decreased secretion of parathyroid hormone (PTH) from the parathyroid glands next to the thyroid. This can occur as a result of damage to the glands during thyroid surgery and usually resolves. This may also occur as a result of autoimmune destruction of the glands, in which case it is usually permanent.

**Parathyroid glands:** usually four small glands located around the thyroid that secrete parathyroid hormone (PTH) which regulates the body's calcium levels.

**Parathyroid hormone (PTH):** the hormone that regulates the body's calcium levels. High levels of PTH cause hypercalcemia, or too much calcium in the blood. Low levels of PTH cause hypocalcemia, or too little calcium in the blood.

**Clinical trials:** when a new drug is developed, it must undergo an extensive series of steps, called phases, to prove that it is more effective in patients than the drugs that are currently available to treat the condition. A Phase 1 trial tests a new drug or treatment in a small group of people for the first time to evaluate its safety, determine a safe dosage range and identify side effects. A Phase 2 trial gives the drug to a larger group of people to see if it is effective and to further evaluate its safety. A Phase 3 trial gives the drug to large groups of people to confirm its effectiveness, monitor side effects, compare it to commonly used treatments and collect information that will allow the drug or treatment to be used safely.



# Clinical Thyroidology® for the Public

## ATA® Alliance for Thyroid Patient Education

**GOAL** The goal of our organizations is to provide accurate and reliable information for patients about the diagnosis, evaluation and treatment of thyroid diseases. We look forward to future collaborations and continuing to work together toward the improvement of thyroid education and resources for patients.



ThyCa: Thyroid Cancer  
Survivors' Association, Inc.™  
[www.thyca.org](http://www.thyca.org)



MCT8 - AHDS  
Foundation



Thyroid  
Federation  
International

### American Thyroid Association®

[www.thyroid.org](http://www.thyroid.org)

ATA® Patient Resources:

[www.thyroid.org/thyroid-information/](http://www.thyroid.org/thyroid-information/)

Find a Thyroid Specialist: [www.thyroid.org](http://www.thyroid.org)

(Toll-free): 1-800-THYROID

[thyroid@thyroid.org](mailto:thyroid@thyroid.org)

### Light of Life Foundation

[www.checkyourneck.com](http://www.checkyourneck.com)

[info@checkyourneck.com](mailto:info@checkyourneck.com)

### MCT8 – AHDS Foundation

[mct8.info](http://mct8.info)

Contact@[mct8.info](mailto:mct8.info)

### Bite Me Cancer

[www.bitemecancer.org](http://www.bitemecancer.org)

[info@bitemecancer.org](mailto:info@bitemecancer.org)

### Graves' Disease and Thyroid Foundation

[www.gdatf.org](http://www.gdatf.org)

(Toll-free): 877-643-3123

[info@ngdf.org](mailto:info@ngdf.org)

### Thyca: Thyroid Cancer Survivors' Association, Inc.

[www.thyca.org](http://www.thyca.org)

(Toll-free): 877-588-7904

[thyca@thyca.org](mailto:thyca@thyca.org)

### Thyroid Federation International

[www.thyroid-federation.org](http://www.thyroid-federation.org)

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