

Your Guide To Thyroid Health

Written by Clinical Nutritionist Renae Cinanni (BHSc Nutritional & Dietetic Medicine)

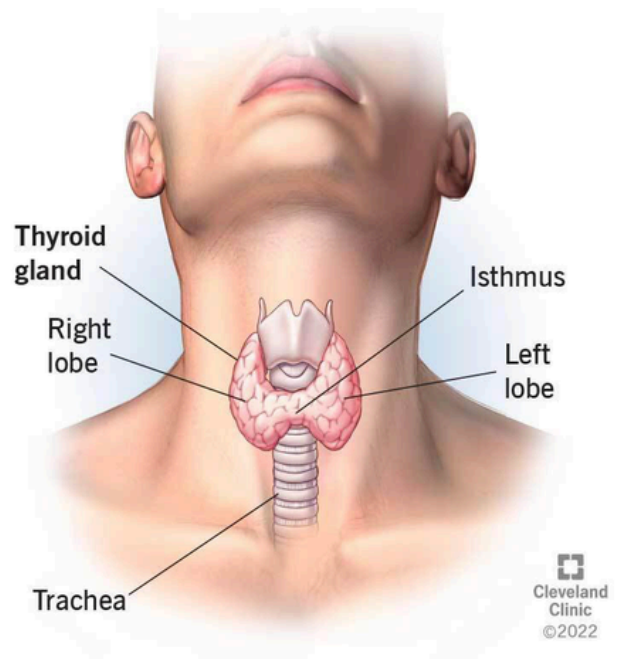
This handout is intended for educational purposes only and does not replace or substitute medical advice. Speak with your healthcare practitioner for personalised nutrition and advice.



What is the thyroid?

The thyroid gland, shaped like a butterfly, is an endocrine gland situated in the lower front of the neck. Its primary function is to **produce thyroid hormone**, which is released into the bloodstream and delivered to all body tissues. This hormone is crucial for the body's energy use, maintaining warmth, and ensuring the brain, heart, muscles, and other organs operate correctly.

Despite its importance, the thyroid is often overlooked and inadequately treated. It plays a vital role in **boosting energy** and **overall health**. When the thyroid doesn't work properly, it triggers a cascade of hormonal reactions affecting various glands and hormones within the endocrine system, as well as the bodily systems they control. This can lead to two main health issues: **hyperthyroidism (overactive thyroid)** or **hypothyroidism (underactive thyroid)**.



Major Hormones Produced By The Thyroid Gland:

Thyroxine (T4):

This hormone is produced by the thyroid gland under the regulation of the hypothalamus and pituitary gland.

A feedback loop signals the hypothalamus to release **thyrotropin-releasing hormone (TRH)**, which then stimulates the pituitary gland to release **thyroid-stimulating hormone (TSH)**.

The "4" in T4 represents the four iodine molecules attached to it.

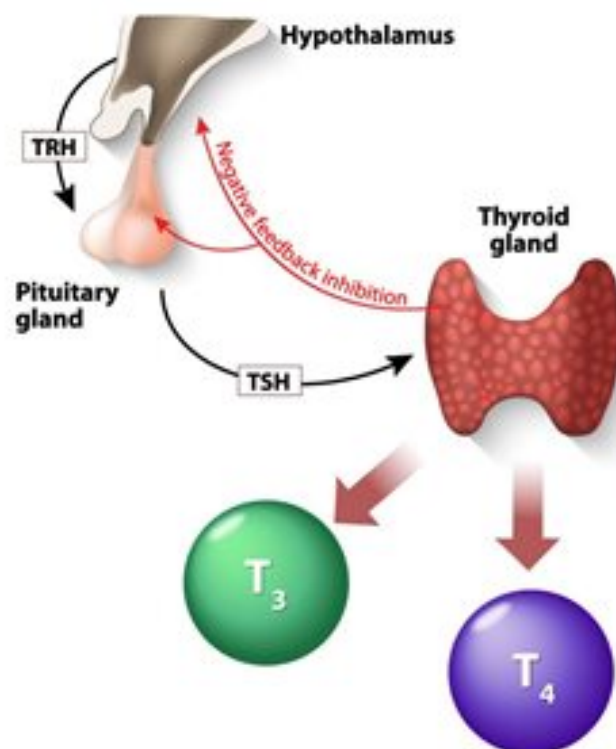
To activate T4, it is converted into T3 by enzymes that remove one iodine molecule.

Triiodothyronine (T3)

The thyroid gland produces the second thyroid hormone, T3, and also forms in other tissues through the enzymatic conversion (deiodination) of T4.

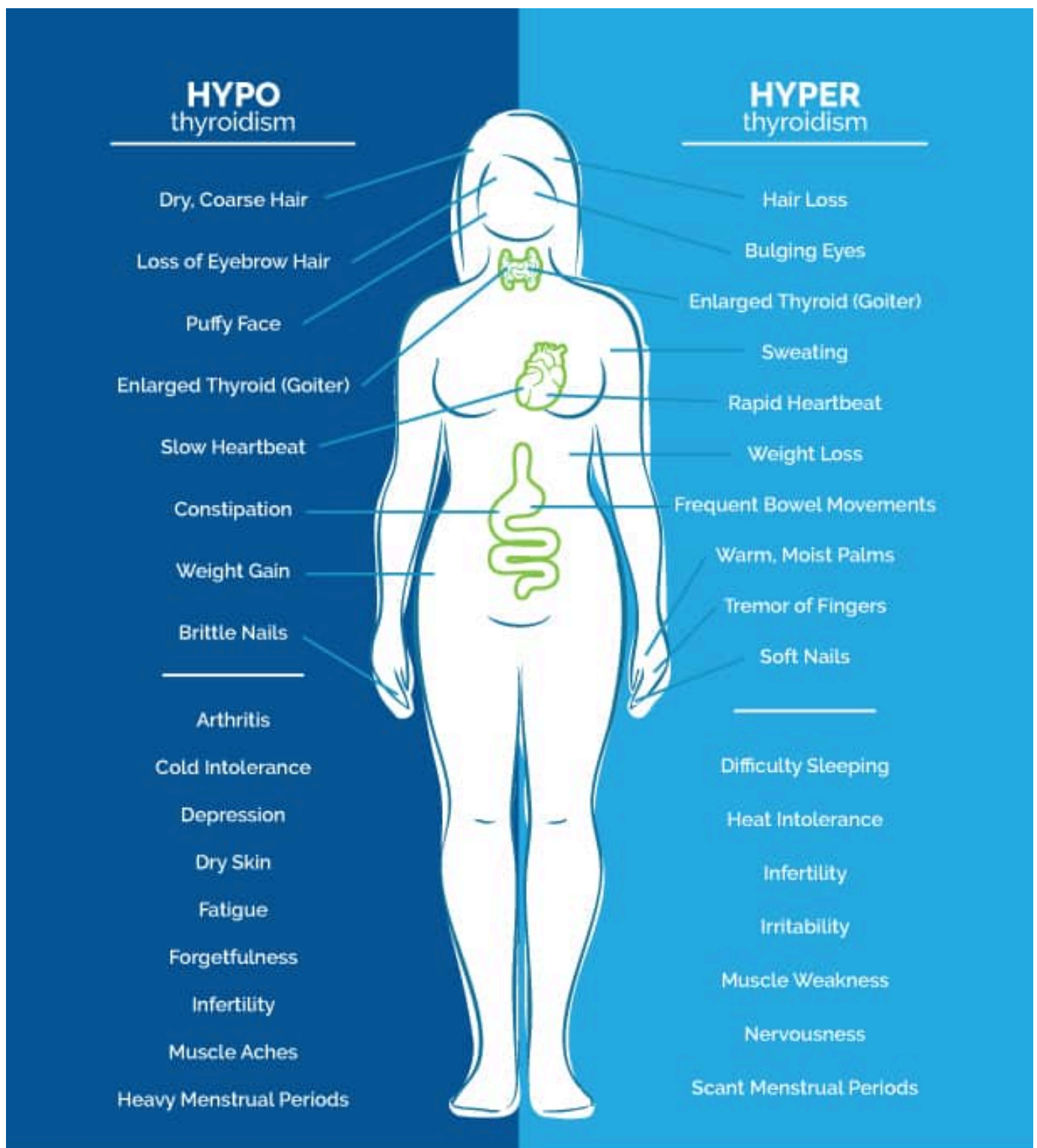
T3 is essential for muscle control, brain function and development, heart and digestive functions.

Additionally, it influences the body's metabolic rate and helps maintain bone health.



Thyroid Conditions & Symptoms

| Hypothyroidism | Hyperthyroidism |
|--|---|
| Underactive production of thyroid hormones T4 and/ or T3. Symptoms can be difficult to identify as they are commonly linked with other diseases. | Most commonly caused by Grave's Disease. Overproduction of T4, T3 or both |



Factors Affecting Thyroid Health and Trigger of Thyroid Disease

| | |
|-----------------------|---|
| Stress | Has a significant impact on thyroid hormone function, potentially due to the effect of cortisol. Cortisol can inhibit the conversion of T4 to the active thyroid hormone T3 and can also increase the production of reverse T3 (rT3) , which is unusable. This disruption can further disturb the delicate balance of thyroid hormones essential for optimal health. |
| Food Intolerances | If you are predisposed to an autoimmune condition, certain foods can cause your immune system to overreact. Foods like grains, gluten, soy, and dairy can trigger inflammation, potentially worsening symptoms and causing autoimmune flare-ups. |
| Nutrient Deficiencies | Your body depends on specific nutrients for optimal immune system function. Deficiencies in selenium and vitamin D have been associated with poor immune function in individuals with autoimmune thyroid conditions. The thyroid also requires other nutrients like iron, zinc, and tyrosine for optimal function. |
| Gut Issues | Nearly 80% of your immune system is found in your gut microbiome . Research indicates that poor gut health, such as leaky gut syndrome and dysbiosis, can lead to weakened immune health. Additionally, 20% of your T4 is converted to the active thyroid hormone T3 in the gut , and an imbalanced, unhealthy microbiome can hinder this process. |
| Toxin Exposure | This issue is becoming more common as our environment becomes increasingly toxic. Studies have shown that chemicals and heavy metals can trigger an autoimmune response against the thyroid. |
| Infections | Bacterial and viral infections are linked to nearly every autoimmune condition. This may be because a significant portion of our immune system is derived from the gut microbiome. When infections enter the gut, they can disrupt immune activity. |
| Iodine Levels | While iodine is essential for producing thyroid hormones, excessive amounts can actually worsen the thyroid condition known as Hashimoto's Disease. |
| Other possible causes | Contributing factors may include estrogen imbalances, blood sugar dysregulation, insulin resistance and diabetes, use of artificial sweeteners, smoking, excessive consumption of goitrogens, and low levels of vitamin A, iron, and copper. |

Testing for Thyroid Conditions

| | |
|---|--|
| Recommended Testing | <ul style="list-style-type: none">• Full thyroid panel - TSH, T4, T3, rT3• In addition to a thyroid panel it is also important to check vitamin D, iron, zinc and iodine. |
| <p>If Autoimmunity is suspected or if there is a family history of Hashimoto's or Grave's Disease.</p> <p>When the immune system has lost its ability to recognize "self" and is producing antibodies against a specific gland or tissue—in this case, the thyroid.</p> <p>Antibodies to the thyroid can be present for up to 10 years before any changes in the gland's function become apparent.</p> | <ul style="list-style-type: none">• TG Thyroglobulin (TG) antibodies<ul style="list-style-type: none">◦ A protein produced by the thyroid that plays an important role in the production, storage and release of thyroid hormone. Having TG antibodies present means the immune system is damaging thyroglobulin; affecting the production of both T4 and T3 which can be raised in Hashimoto's and Grave's Disease• Thyroid Peroxidase (TPO) antibodies<ul style="list-style-type: none">◦ TP is the enzyme responsible for the production of thyroid hormone. The presence of TPO antibodies indicates an immune attack to normal thyroid tissue causing inflammation and impaired function and is often raised in Hashimoto's and Grave's Disease.• Thyroid-stimulating immunoglobulin (TSI) antibodies<ul style="list-style-type: none">◦ Associated with Grave's Disease (never Hashimoto's) and targets the TSH receptors. These antibodies bind to the TSH receptor and mimic the action of TSH causing the overproduction of thyroid hormones. |
| Food Intolerances | <ul style="list-style-type: none">• Gluten sensitivity and Celiac Disease• There is strong scientific evidence linking autoimmune thyroid disease (both Hashimoto's and Grave's) and gluten intolerance. This is because of molecular mimicry of the thyroid cell structure and gliadin (gluten protein) - they are very similar in structure so the immune system can recognise thyroid cells as harmful and so are tagged for it to be destroyed by the immune system. |
| GI MAP | <ul style="list-style-type: none">• Poor gut health can suppress thyroid function and trigger Hashimoto's disease. Low thyroid function can lead to an inflamed gut and potential food intolerances.• Can also give us an insight into any infections (bacterial or viral) such as Epstein-Barr virus which can be a potential trigger for poor thyroid function. |
| Heavy Metal Toxicity | <ul style="list-style-type: none">• Some of the common toxins, particularly heavy metals, are often included in a hair mineral analysis test, as they seem to be key triggers in the development of thyroid disease. |

Nutritional Requirements and Intervention

In general, the best diet for a person with hypothyroidism includes plenty of colorful fruits and vegetables, good quality proteins, healthy fats, and a moderate amount of healthful carbohydrates. This is similar to the Paleo diet or a gluten-free Mediterranean diet.

Aspects of health we need to consider when looking at dietary recommendations include:

- Stress and adrenal function
- Gut health and immunity
- History of viral/bacterial infection
- Gluten sensitivity
- Environmental toxicity
- Nutrient deficiency

When creating a dietary plan, we also need to consider chronic conditions related to hypothyroidism, whether as cause or effect:

- Obesity
- Diabetes
- Cardiovascular disease
- High cholesterol
- Depression
- Autoimmune disease, especially if Hashimoto's is the main trigger of your thyroid condition

The table below goes through specific nutrients, their function and food sources that should be included in a healthy diet.

| | |
|-----------------|---|
| Iodine | <p>Iodine is a trace element essential for stimulating the production of thyroid hormone (T4) and supporting the conversion of T4 to T3 (the active form), making it important to get enough in the diet. While iodine deficiency is the most common cause of hypothyroidism, in rare cases, excessive iodine supplementation may cause harm. This is why iodine is a controversial nutrient when it comes to thyroid health, and a balanced approach is necessary to support optimal health. It's important to note that iodine supplementation will have the most significant impact on the thyroid in the presence of selenium deficiency.</p> <p>Best sources: Seaweed, eggs, saltwater fish, and shellfish.</p> |
| Selenium | <p>Selenium is an essential trace element necessary for the proper conversion of T4 (inactive thyroid hormone) to T3 (active thyroid hormone). It is also a precursor to one of the body's most important antioxidants and may help reduce inflammation that specifically affects thyroid function. While severe deficiency is rare, suboptimal levels of selenium may impact thyroid function.</p> <p>Best sources: Brazil nuts (which are very concentrated in selenium, 2 -3 nuts meets the requirements for daily selenium intake), prawns, halibut, sardines, grass-fed beef, salmon, and turkey.</p> |

| | |
|-------------|--|
| Zinc | <p>Zinc is an essential trace element that plays a crucial role in thyroid health by aiding in the conversion of T4 to T3 and in the production of TSH.</p> <p>Best sources: Shellfish, beef (and other red meats), legumes, kidney beans, pumpkin seeds, almonds, and cashews.</p> |
|-------------|--|

Foods to be mindful of / reduce intake:

| | |
|-------------------|--|
| Goitrogens | <p>Goitrogens are plant compounds that can interfere with the normal function of the thyroid gland. Certain goitrogens, like glucosinolates, may reduce iodine uptake by the thyroid cells, interfere with the production of thyroid peroxidase (TPO) necessary for T4 production, and reduce TSH levels.</p> <p>Scientific evidence on goitrogen avoidance is mixed, but general guidance suggests reducing these compounds in the diet, especially in populations with iodine deficiency.</p> <p>Cooking plant foods can reduce goitrogen levels. With the above said, you would need to consume very large amounts of these foods for them to have any affect, so take this advice with a grain of salt!</p> <p>Food sources: broccoli, brussels sprouts, cabbage, cauliflower, kale, mustard greens, turnips, leafy greens, soy beans, peanuts and millet</p> |
| Soy | <p>Soy isoflavones may inhibit the enzyme thyroid peroxidase (TPO), which is crucial for thyroid hormone synthesis. They may also interfere with thyroid hormone production and have been shown to elevate TSH levels in women. It is advisable to avoid soy products or reduce your intake to 2 -3 times per week if you have a thyroid imbalance.</p> <p>As with goitrogens, you would need to comes massive amounts of soy for it to have such an effect.</p> |
| Gluten | <p>Many patients with thyroid disease also have gut dysbiosis or leaky gut, which allows gluten to enter the bloodstream through compromised gastrointestinal walls.</p> <p>This can trigger an immune response, where the body may mistakenly attack thyroid tissues because gluten closely resembles thyroid tissue.</p> <p>While a gluten-free diet is often the best option, addressing gut dysbiosis and leaky gut can sometimes allow patients to reintroduce small amounts of gluten, such as fermented sourdough, without issues.</p> |

| | |
|------------------------|--|
| Processed Foods | Processed foods along with sugars create hormonal imbalances, increase inflammation, and prevent gut and thyroid healing and recovery, so all processed foods should be avoided when someone has thyroid disease. |
| Other Tips | <ul style="list-style-type: none"> • Include pre and probiotic foods to address dysbiosis. • Have a plant-based diet that is high in colorful phytonutrients from fruits and vegetables to provide antioxidants and anti-inflammatory compounds. • Reduce alcohol and caffeine as they put further stress on the adrenals. • Increase good quality dietary protein. • Aim for a diet low in Omega-6 and high in Omega-3 (chia seeds, linseeds, fatty fish). • Eat a diet low in saturated and trans fats. • Eat organic produce as much as possible to reduce toxins. |

Lifestyle Tips & Weight Management

| | |
|------------------------------|--|
| Exercise | <ul style="list-style-type: none"> • Moderate to high intensity exercise such as fast-paced walking, running and hiking may help boost your thyroid hormone levels which may help speed up your metabolism and thus loose weight. • If you are very tired, have low energy and suffer from joint pain, inflammation, muscle aches and pain and poor focus, I recommend focusing on low intensity exercises (walking, body weight and strength training) to avoid over-tiring and stressing the body. |
| Rest | Inadequate and poor-quality sleep have been linked to weight gain, particularly in the abdominal area. |
| Mindful Eating | Involves paying attention to what you're eating, why you're eating, and how fast you're eating can help you develop a better relationship with food. Studies also show that it can help you lose weight. |
| Yoga & Meditation | Yoga and meditation can help also shows that these mind and body practices can help you maintain a healthy weight you de-stress and improve your overall health. Research |

7 Day Meal Plan Example

| | |
|-----------|---|
| Monday | <p>Breakfast: Scrambled eggs with mushrooms and spinach</p> <p>Lunch: Gluten-free wrap with prawns, avocado, mango and rocket or spinach with a squeeze of lime</p> <p>Dinner: Roast chicken with seasonal vegetables</p> |
| Tuesday | <p>Breakfast: Gluten-free overnight oats with chia seeds and ground almond, topped with berries</p> <p>Lunch: Grilled chicken salad with seasonal vegetables topped with pumpkin seeds</p> <p>Dinner: Baked salmon with roasted vegetables</p> |
| Wednesday | <p>Breakfast: Omelette with mushrooms and courgette</p> <p>Lunch: Grilled trout with quinoa and lentils, salad leaves, lemon juice and pumpkin seeds</p> <p>Dinner: Coconut dhal with butternut squash</p> |
| Thursday | <p>Breakfast: Berry and nut butter protein smoothie</p> <p>Lunch: Salmon and sweet potato patties with green salad</p> <p>Dinner: Chicken tagine with fresh apricots and chickpeas served with buckwheat or quinoa</p> |
| Friday | <p>Breakfast: Poached or boiled eggs with mashed avocado on gluten free toast and a small orange</p> <p>Lunch: Spicy bean soup with roasted cauliflower</p> <p>Dinner: Beef curry with coconut rice</p> |
| Saturday | <p>Breakfast: Coconut yogurt with berries and almonds</p> <p>Lunch: Turkey burger on a green salad with sweet potato chips</p> <p>Dinner: Grilled prawn skewers with bell peppers and pineapple</p> |
| Sunday | <p>Breakfast: Frittata with vegetables and a small orange</p> <p>Lunch: Chicken salad sandwich with a gluten-free bun</p> <p>Dinner: Beef mince pie topped with mashed sweet potatoes, served with sautéed spinach, asparagus and roasted tomatoes</p> |