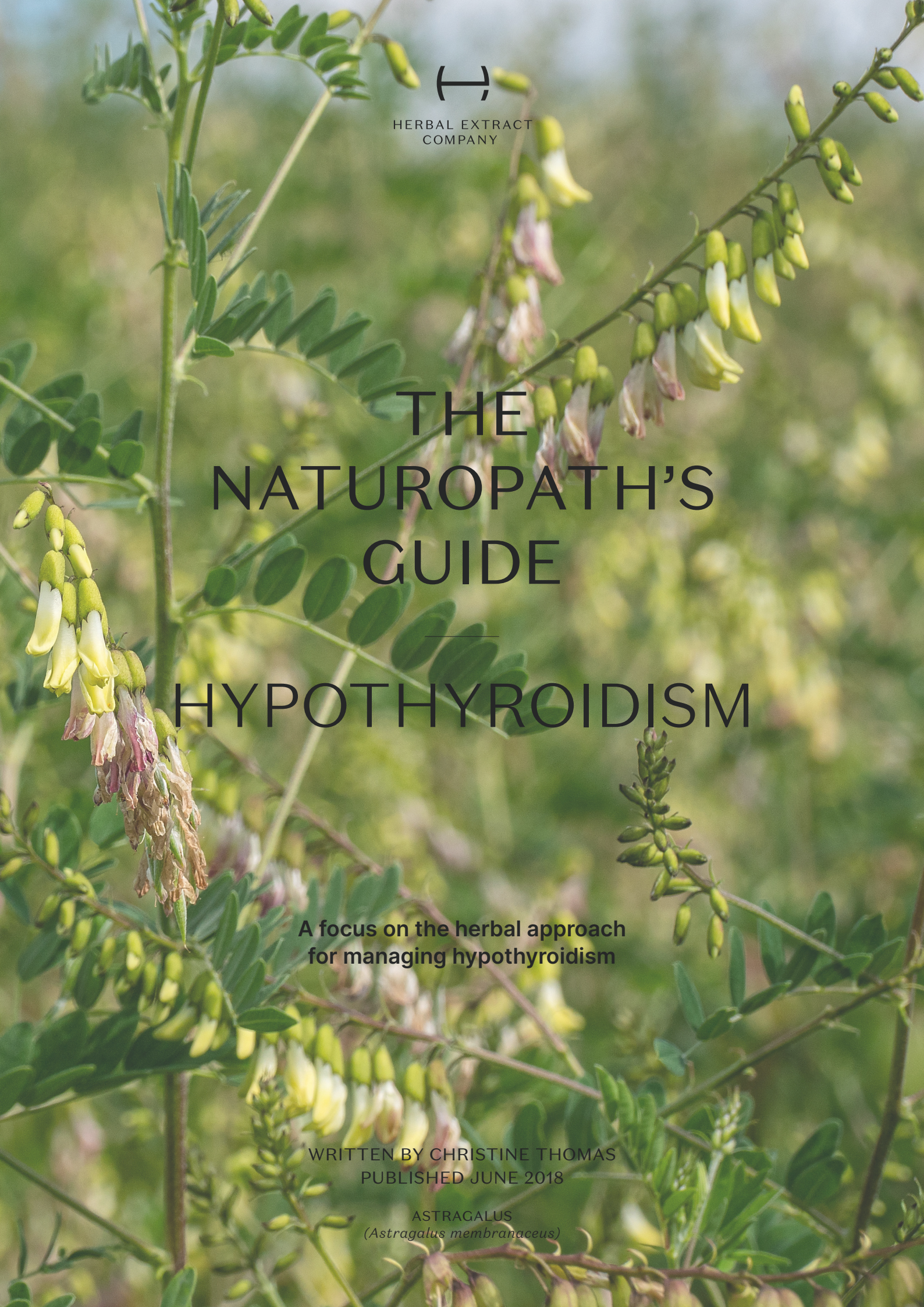


HERBAL EXTRACT COMPANY

THE NATUROPATH'S GUIDE

HYPOTHYROIDISM

A focus on the herbal approach for managing hypothyroidism

WRITTEN BY CHRISTINE THOMAS
PUBLISHED JUNE 2018

ASTRAGALUS
(Astragalus membranaceus)

HYPOTHYROIDISM

Hypothyroidism is a common, yet complex, endocrine disorder which can be supported effectively with herbal medicine.

A sluggish thyroid is usually an indication of deeper problems within the body. Conventional medicine approaches of substituting synthetic hormones isn't always successful and may simply mask the symptoms. Herbs for hypothyroidism can work with the body to restore the balance of nutrients and hormones that help a thyroid regulate and produce the correct level of hormones.

Condition Overview

In hypothyroidism the thyroid gland is underactive and does not make enough thyroid hormone. Iodine is a crucial mineral in thyroid hormone production and iodine deficiency remains the most common cause of hypothyroidism worldwide. However in countries such as Australia, and the Western world, this dietary deficiency has been largely eradicated and Hashimoto's disease (autoimmune chronic lymphocytic thyroiditis or Hashimoto's thyroiditis) is the most common cause. Having said this iodine deficiency has re-emerged as a significant public health problem in the Australian population. Recent studies have shown mild to moderate iodine deficiency in school-aged children and pregnant women.

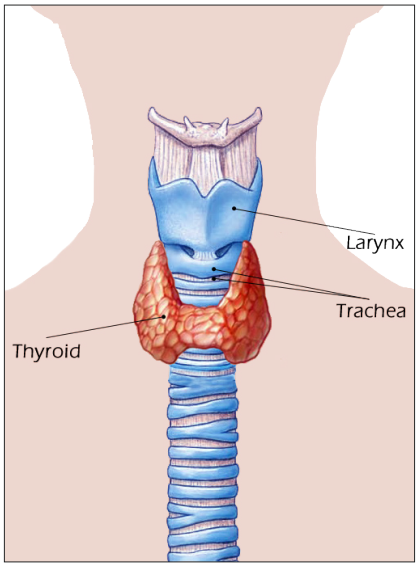
Hashimoto's disease is triggered by an autoimmune process that causes inflammation of the thyroid gland. This means that the body inappropriately attacks the thyroid gland as if it was foreign tissue. Ultimately the individual produces little or no thyroid hormone and becomes hypothyroid. Hashimoto's disease is one of the most common autoimmune diseases and is an organ-specific T-cell mediated disease. T lymphocytes, a type of cell involved in the inflammation process, invade the thyroid gland and cause a silent, painless inflammation that destroys it.

Hypothyroidism can be either primary or secondary. Primary hypothyroidism means that the thyroid gland itself is diseased. Hashimoto's disease is the most common cause of primary hypothyroidism. Secondary hypothyroidism is caused by problems with the pituitary gland, the brain structure that supervises the thyroid gland. Subclinical hypothyroidism, or mild thyroid failure, is defined as mildly elevated thyroid stimulating hormone (TSH) levels despite normal serum levels of free thyroxine (T4). It is a common problem with a prevalence of three to eight per cent in the population without known thyroid disease.

Common Symptoms

The signs and symptoms of hypothyroidism are often nonspecific and vague if present and can develop over many years. Symptoms can overlap with many other medical conditions and can remain undiagnosed until appropriate testing is performed to make a diagnosis. Hypothyroidism is usually

gradually progressive with symptoms increasing as thyroid function deteriorates so the symptoms are influenced by the severity of the hypothyroidism. The spectrum of clinical presentations range from clinically unapparent disease to myxoedema coma, a rare endocrine emergency.



The thyroid, part of the endocrine system, is a butterfly shaped gland found in the anterior portion of the neck. The thyroid gland secretes the hormones thyroxine (T4) and triiodothyronine (T3) which are needed for proper growth and development and which are primarily responsible for determining the basal metabolic rate (BMR) and metabolic processes such as heart rate, blood pressure, body temperature and weight. The thyroid hormones are transported through the blood and act at the cellular level. The variations in the levels of these hormones lead to disturbed BMR and presents with signs and symptoms which are systemic in nature.

When symptoms do appear they may be quite varied and can include:

- fatigue, lethargy and weakness
- fluid retention, weight gain and difficulty losing weight
- puffy and pale face
- increased sensitivity to cold (feel "cold to the core" or "bone cold") and low body temperature
- lowered resistance to infection
- food sensitivities
- menstrual changes
- impaired fertility and difficulty conceiving
- miscarriages and stillbirths
- low libido
- breathlessness
- depression
- slow healing wounds
- poor attention span or memory
- dry, cool, flaky skin (possible eczema or psoriasis)
- hair loss including eyebrows, brittle hair and nails
- joint and muscle pain
- constipation
- headaches or migraines
- decreased sweating
- slowed heart rate
- high cholesterol
- enlarged thyroid (goitre)

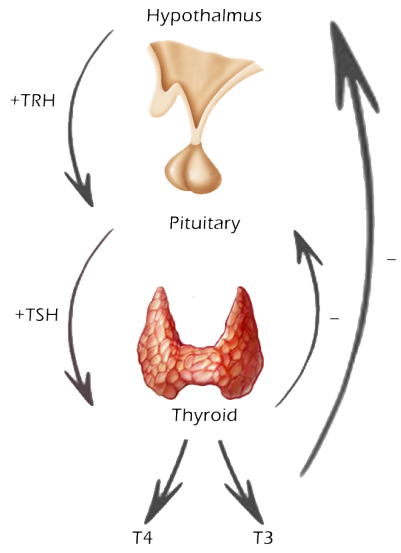
Risk Factors

- **Gender:** Hashimoto's disease is ten times more prevalent in women than in men.
- **Age:** the chances of being hypothyroid increase with age and it occurs primarily in women older than 50.
- **Family history** of thyroid disease or any autoimmune disease. Hashimoto's disease is a complex disease with a strong genetic component so it tends to occur in families.
- **Environmental toxicity:** exposure to radiation on the neck or upper chest area, radioactive waste and bromide. There is increasing evidence that environmental exposures to certain pesticides, insecticides, herbicides and fungicides should also be considered potential risk factors for thyroid disease as they are reported to be endocrine disruptors.
- Numerous studies reveal that hypothyroidism is an independent risk factor of death from cardiovascular disease. Hashimoto's disease is associated with serious alterations in composition and the transport of lipoproteins.
- **Other autoimmune disease:** people who already have another immune condition are at an increased risk. Examples of these conditions include pernicious anaemia, type 1 diabetes, rheumatoid arthritis, vitiligo, celiac disease, multiple sclerosis and Addison's disease. Up to 38% of patients with type II diabetes have Hashimoto's disease.
- **Anti-thyroid medications** (a treatment for hyperthyroidism) or have been treated with radioactive iodine (a treatment for thyroid cancer).

- **Thyroid surgery** (thyroid removal to treat thyroid cancer or to treat a symptomatic goitre).
- **Congenital hypothyroidism:** girls and women who have Turner syndrome (more than two X chromosomes and usually exhibiting short stature) are at a greater risk of hypothyroidism. Down syndrome is another genetic condition that increases the risk of hypothyroidism developing.
- Women who have delivered a baby within the past six months should be screened for hypothyroidism if they have symptoms of an underactive thyroid. During or following pregnancy, although it's not exactly known why, some women begin to produce very high levels of thyroid hormones followed by a very rapid decline. This condition is known as **postpartum thyroiditis**. The symptoms often disappear within 12–18 months but can also lead to permanent hypothyroidism.
- **Ethnicity:** hypothyroidism is more common among Asian and white individuals than it is among other races.
- **Medications:** certain medications cause hypothyroidism as a side effect. Examples include lithium (a mood stabilizer user to treat depression and bipolar disorder), amiodarone (a drug used to treat arrhythmia or irregular heartbeat) and interferon (used to treat hepatitis C and some types of cancer).
- **Pituitary tumour**
- **Nutrient deficiencies**

How To Get The Correct Diagnosis

As mentioned above thyroid disorders are complex and can be difficult to diagnose due to many symptoms being similar to those of other medical conditions. Where hypothyroidism is suspected the doctor will perform a neck examination to see if the thyroid is enlarged (goitre), or has nodules, and will look for other signs of hypothyroidism such as a slow heart rate. Initial screening for patients with suspected hypothyroidism is performed by measuring the TSH level. The majority of thyroid hormone released by the gland (85%) is thyroxine (T4), while a smaller proportion (15%) is tri-iodothyronine (T3), the active thyroid hormone. If TSH is raised and T4 is below the normal range an underactive thyroid would be diagnosed. Subclinical hypothyroidism is diagnosed if TSH is above the normal range and free T3 and/or T4 are normal. Some people with hypothyroidism and Hashimoto's disease have problems converting T4 to T3. If it is suspected that there is a disturbance in the immune system, such as Hashimoto's disease, then antibody tests may be conducted. Many patients show clinical evidence of low thyroid function but have normal TSH, T3 and T4. There has been postulation that there is thyroid hormone resistance, which may be regarded as similar to insulin resistance, where the thyroid gland produces normal amounts of hormone but the cells are unable to utilise the hormone properly. It has been suggested that this is caused by mitochondrial dysfunction, environmental toxins including heavy metals, dioxins and pesticides acting as endocrine disrupters, elevated cortisol, chronic infection and chronic inflammation.



The hypothalamic-pituitary-thyroid (HPT) axis (TRH: Thyrotropin releasing hormone, TSH: Thyroid stimulating hormone, T3: tri-iodothyronine and T4: thyroxine). The proper interpretation of thyroid function tests requires an understanding of thyroid physiology. Thyroid function is regulated by a relatively straightforward relationship between the hypothalamus, pituitary and the thyroid gland itself.

There is some disagreement between the naturopathic and conventional medical community over which laboratory tests ought to be run for hypothyroidism and how they ought to be interpreted. A long-standing reliance on the TSH

test has come under increased scrutiny in the public domain and many alternative and traditional medicine providers are now questioning the reliability of standard biochemical testing of thyroid function. This is driven by the fact that many patients struggle with a multitude of these non-specific complaints such as obesity, fatigue, mood changes and hair loss, and in their quest for answers become upset when they are told their thyroid function is normal. It is important for care providers to have an understanding of the shortcomings and proper interpretation of these tests to be better able to discuss thyroid function with their patients.

Considerable literature exists regarding what the normal range for TSH really should be. Even though the normal range for TSH is generally listed at between 0.35 mIU/mL and 4.50 mIU/mL, it is likely that the most normal range is between 0.5 mIU/mL and 2.50 mIU/mL. It is for this reason that the target TSH in the management of hypothyroidism is within this latter range. There are a number of variables which influence tests and can cause a variation in TSH which could affect treatment decisions. These include the percentiles on which normal ranges are calculated, advanced age, circadian rhythm and the reliability of the assay employed.

While being a seldom used method to assess thyroid function, measuring basal body temperature (Barnes test) is a very simple hypothyroid indicator that is an effective and accurate diagnostic tool in most instances. Basal body temperature is measured using a thermometer placed under the armpit before rising for at least five consecutive days. A reading of less than 36.4 degrees Celsius can indicate underactivity.

Conventional Treatment & Prevention

The treatment for hypothyroidism and Hashimoto's disease is oral administration of thyroid hormone replacement with synthetic T4 (Levothyroxine sodium (L-thyroxine)) to maintain normal levels or, less often, synthetic T3 drugs like Cytomel (liothyronine). Synthetic T4 is the closest form of thyroxine hormone to what a healthy thyroid gland produces. If the thyroid gland is underactive the doctor will prescribe a small dose to start treatment, usually 50 mcgs, and increase the dose as the thyroid gland becomes progressively inactive. Once treatment has begun it may take some time to get the dose right, and further adjustments may be needed as time goes by, so hormone levels are checked regularly. Levothyroxine is generally safe as long as it is kept within the necessary range for the individual which requires periodic testing. Excessive doses can create a dangerous hyperthyroid state and its chronic use is related with cardiac dysfunction, left ventricular hypertrophy and rapid bone loss. The side effects of hormone replacement therapy compels the need for safer modalities of treatment which are equally effective. Thyroid glandular drugs or supplements like Armor Thyroid are made from animal thyroid glands and are sometimes used as an alternative to synthetic thyroid hormones by practitioners. The safety and dose consistency of these drugs can be controversial.

" Herbs can be particularly useful where the thyroid condition is subclinical and not showing up in blood tests but where symptoms are still present."

INTERVENTION	Adaptogen, adrenal tonic, nervine	Anti-inflammatory	Anitoxidant	Circulatory stimulant	Hepatic and digestive	Hormorne balancing	Immuno-modulating and lympatic
Astragalus	✓				✓		✓
Bacopa	✓	✓	✓		✓		
Bladderwrack					✓	✓	
Blue Flag		✓			✓		✓
Codonopsis	✓		✓		✓	✓	✓
Coleus					✓	✓	
Fennel		✓			✓	✓	
Prickly Ash				✓	✓		✓
St Mary's Thistle		✓	✓		✓		
Siberian Ginseng	✓	✓	✓		✓	✓	✓
Withania	✓	✓	✓		✓	✓	✓
Wood Betony	✓	✓	✓	✓	✓		

Natural Therapies For Treatment & Prevention

Even though conventional medicine can be effective it does not address the underlying root cause of hypothyroidism. Herbal medicine can be employed in a broader perspective using a wholistic approach. Herbs can be particularly useful where the thyroid condition is subclinical and not showing up in blood tests but where symptoms are still present. Natural therapies can significantly improve the overall vitality of a patient and address the root cause of hypothyroidism rather than suppressing the symptoms. As mentioned the thyroid gland is a part of the endocrine system where different glands release hormones that communicate with the rest of the body to maintain health and homeostasis. This is an important reminder that the thyroid cannot be separated from the endocrine system and that from the rest of the body. When treating patients it is important practitioners take a systemic approach and recognise the thyroid's relationship to the whole body. For example in Hashimoto's disease antibodies are formed against the thyroid peroxidase enzyme, thyroglobulin, and TSH receptors preventing the manufacture of sufficient levels of the hormone. These antibodies can also bind to parts of the endocrine system, specifically the adrenal gland, pancreas, as well as acid-producing cells in the stomach, known as the parietal cells. In the endocrine system a gland-specific antibody that starts to wreak havoc in other glands that are important in the metabolism and the function of the thyroid can cause wider repercussion throughout the system. Uncorrected thyroid dysfunction in pregnancy has well recognised deleterious effects on foetal and maternal health so it is recommended that preconception management include a healthy thyroid strategy.

The root cause could be:

- an autoimmune condition such as Hashimoto's disease.
- insulin resistance therefore limit carbohydrates.
- elevated oestrogen which can increase thyroid binding globulin (TBG), which in turn can decrease the availability of circulating T4 and T3. The use of the oral contraceptive pill, pregnancy, hormone replacement therapy and the drug tamoxifen can all cause this increase in TBG.

Siberian Ginseng
(Eleutherococcus senticosus)

- digestive problems: Hashimoto's disease is strongly tied to leaky gut, small intestinal bacterial overgrowth (SIBO) , dairy and gluten intolerance.
- chronic stress which can suppress immunity.
- chronic inflammation can interfere with the function of all body systems, specifically the highly sensitive cell membranes, and this may affect thyroid hormone status.
- nutrient deficiencies in zinc, copper and vitamin A, B2, B3, B6, C and D can cause a decrease in production of T4. T4 conversion into T3 is dependent upon the presence of iodine, selenium and tyrosine.
- food allergies e.g. egg, gluten, dairy, corn, soy, nuts, fish, artificial flavours and colours.
- overconsumption of goitrogenic (goitrogens are substances that block iodine utilisation) and aggravating foods which can suppress thyroid function. Raw (cooked is ok but not juiced) brassicas (kale, chard, spinach, mustard greens, broccoli, brussels sprouts, cabbage), soy, gluten, dairy, factory farmed meats/dairy.
- environmental toxin exposure e.g. NSAIDs, alcohol.

The treatment of hypothyroidism will therefore vary for each individual based on their symptoms and the organ systems that are the most depleted. Herbs can alter thyroid hormone levels, and affect a patient's sensitivity to thyroid medications, although they may not be sufficient in severe hypothyroid states. With careful guidance and observation most natural options can be used alongside conventional care safely.

For the best results when using natural therapies to treat hypothyroidism it is recommended thyroid hormone levels be monitored and that thyroid hormone tests be taken before beginning herbal treatments to establish a baseline. The tests can be repeated three and six months after taking the herbal treatment consistently. Thyroid hormone levels change slowly (it takes an average of three months to alter them) so immediate changes should not be expected and the treatment requires vigilance.

Bacopa
(Bacopa monnieri)

Potential Treatment Plans

A hypothyroidism formula could include three to seven herbs with 50% direct thyroid support, 45% supportive herbs (nervines, adaptogens, liver) and one to five per cent adjuvants or low dose herbs.

Hypothyroidism with Hashimoto's disease Eliminate food intolerances (e.g. gluten) Heal leaky gut and digestion	Withania	Gotu Kola	Turmeric	Schizandra
	Bacopa	Ginger		
Subclinical hypothyroidsim with liver stagnation Improve sleep Stress reduction Avoid toxins	St Mary's Thistle	Withania	Blue Flag	Astragalus
	Wood Betony			
Adaptogenic formula reducing fatigue; and improving metabolic function	Coleus	Withania	Bladderwrack	Liquorice
	Myrrh	Reishi	Prickly Ash	
Obesity associated with Low thyroid function	Bladderwrack	Withania	Coleus	Bacopa
	Gymnema	Fennel		

St Mary's Thistle
(Silybum marianum)

Desired Herbal Actions and Potential Herbs Include:

Adaptogen, Adrenal Tonic, Nervine

Chronic adrenal stress disrupts the hypothalamic-pituitary-adrenal (HPA) axis which can suppress thyroid function. Adaptogenic herbs can modify pituitary and hypothalamic stress and support the adrenal function. Herbs include astragalus, codonopsis, damiana, gotu kola, Korean ginseng, liquorice, oats, passion flower, rehmannia, reishi, rhodiola, schizandra, Siberian ginseng, withania, zizyphus.

Anti-inflammatory

Reduce the body's inflammatory load and enhance HPT axis function and cellular signalling. Herbs include ginger and turmeric.

Antioxidant

Protect thyroid tissue from damage and improve cellular membrane function. Herbs include maritime pine and olive leaves (phenolic compounds from olive leaves had a protective effect against induced thyroid dysfunction *in vivo*).

Circulatory Stimulant

People with hypothyroidism often have cold hands and feet and suffer from poor circulation. Circulatory stimulant herbs can improve circulation and warm the body. Adding a circulatory stimulant herb to a compound formula will also serve as an adjuvant. Herbs include cayenne, cinnamon, fennel, ginger, ginkgo, gotu kola, hawthorn (especially if the patient has atherosclerosis and high blood pressure), prickly ash.

Hepatic and Digestive

Low thyroid hormone levels can compromise liver and digestive function resulting in poor digestion and assimilation of nutrients. Liver function is important for T4 to T3 conversion. Hepatic herbs decongest the liver, enhance metabolism and improve excretion of cholesterol and help to reduce the risk of cardiovascular disease. They enhance the metabolism and excretion of oestrogen which supports thyroid health and indirectly helps to balance reproductive hormones. Improving liver function often modifies skin conditions such as dry skin. Herbs include bupleurum, burdock, chamomile, dandelion root, fennel, ginger, globe artichoke, gymnema (to help curb sugar cravings), mugwort, St. Mary's thistle, schizandra, reishi, turmeric, yellow dock.

Hormone Balancing

Patients with hypothyroidism may have issues related to their reproductive health. Men and women often have low libido. Women in their reproductive years may have difficulty with their menstrual cycle, as well as issues with conception and miscarriages. Some herbs can be useful to correct hormone imbalances. Many of the herbs mentioned in the adaptogen section can be used to help regulate thyroid and reproductive hormones, as well as to increase fertility and libido. Some of the herbs mentioned in the hepatic section are useful to enhance liver detoxification of hormones. Herbs include black cohosh, chastetree, coleus, dong quai.

Iodine Rich

Bladderwrack

Immunomodulator

Immune modulating herbs that strengthen immunity can be beneficial for hypothyroid individuals with immune weakness. Herbs include astragalus, cat's claw, codonopsis, glossy privet, hemidesmus (some practitioners suggest this works well with low dose echinacea in autoimmune disorders), Korean ginseng, reishi, paeonia, pau d'arco.

Lymphatic

Lymphatic herbs improve lymphatic drainage, fluid congestion and enhance immune function. Herbs include blue flag, boldo, clivers, pleurisy root, poke root.

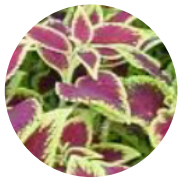
Herbs For Leaky Gut

Demulcents (chamomile, fenugreek, marshmallow) to soothe, astringents (cinnamon, rose hips) to tighten and tone tissue; and vulneraries (chickweed, ribwort) to help heal the tissue.

Herbal Support Could Include:

HERB NAME	DESCRIPTION	ACTIONS
Astragalus *(Astragalus membranaceus)* 	An immunostimulant used to enhance recuperation, reduce fatigue and improve immune function.	Adaptogen Immunomodulator Hypotensive Antioxidant Hypoglycaemic Hepatoprotective Neuroprotective Digestive Hypo-cholesterolaemic
Bacopa *(Bacopa monnieri)* 	This Ayurvedic tonic herb shows promise for hypothyroid conditions. Preliminary animal research suggests that bacopa boosts T4 but not T3. Bacopa is better known as a nerve tonic that benefits memory and cognition and quells anxiety without over sedating. Results from animal experiments have found that bacopa increases thyroxine concentrations by 41% without enhancing hepatic lipid peroxidation suggesting that it can be used as a thyroid-stimulating herb.	Antioxidant Neuroprotective Antidepressant Anti-inflammatory Hepatoprotective
Bladderwrack *(Fucus vesiculosus)* 	Traditionally used for the treatment of low thyroid function and obesity associated with hypothyroidism. It contains iodine which may be responsible for stimulating production of thyroxine and an increase in basal metabolism. Caution needs to be taken with long term use if taken in excess quantities and in cases of hypothyroidism not caused by iodine deficiency.	Thyroid Stimulant Demulcent

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Blue Flag *(Iris versicolor)* 	It has stimulating effects on hepatic functions and has been used in weight loss. It is used in endocrine conditions and other glandular disorders including hypothyroidism with thyroid enlargement.	Alterative Anti-inflammatory Astringent Lymphatic Hepatic
Codonopsis *(Codonopsis pilosula)* 	With similar actions to Korean ginseng, codonopsis is an immune tonic useful for fatigue.	Immunomodulator Adaptogen Cardiotonic Neuroprotective Gastrointestinal Function Regulation Endocrine Function Regulation Antioxidant
Coleus *(Coleus forskohlii)* 	The main bioactive ingredient of this traditional Ayurvedic thyroid herb is called forskolin. Forskolin has been shown to increase the production of thyroid hormones and stimulate their release. Forskolin is an adenylyl cyclase stimulator (including in the thyroid gland) which increases cellular levels of a molecule called cyclic adenosine monophosphate (cAMP) which is involved in making sure the thyroid hormone message is transmitted to the nucleus of the cell. Elevated cAMP levels are associated with increased rates of fat loss and can improve the effects of other fat burning compounds. Further research is needed to confirm these effects since forskolin is most often used as a research tool ***in vitro***, or outside the body, such as in a test tube or petri dish. Forskolin may act differently inside the body. Coleus may be used in combination with thyroid medications to increase gland production if the person has not been on the medication long-term.	Possible Thyroid Hormone Release Stimulator Hypotensive Cardiotonic Digestive

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Fennel *(Foeniculum vulgare)* 	An *in vivo* study tested the physiologic effect of energetically 'hot' and 'cold' seeds and found that warming seeds like fennel increased thyroid function (T3 and T4 levels).	Anti-inflammatory Digestive Aid Oestrogen Modulating
Prickly Ash *(Zanthoxylum clava-herculis)* 	May be used in a similar way to cayenne although slower in its action. Will promote blood flow to the periphery and joints. Any sign of poor circulation can benefit from its use. It has a stimulating effect upon the lymphatic system, circulation and mucous membranes.	Circulatory Stimulant Alterative Carminative Lymphatic Stimulant Bitter Digestive Hepatic
St Mary's Thistle *(Silybum marianum)* 	A nourishing, restorative tonic for the liver and digestive tract which protects the liver from damage created by ingested toxins, aids in the digestion of lipids, reduces and regulates LDL cholesterol, regulates blood sugar, insulin and metabolism, and promotes elimination in cases of constipation.	Hepatoprotective Antioxidant Anti-inflammatory Gastroprotective Hypoglyceamic
Siberian Ginseng *(Eleutherococcus senticosus)* 	Siberian ginseng appears to alter the levels of different neurotransmitters and hormones involved in the stress response, chiefly at the HPA axis.	Adaptogen Immunomodulator Anti-inflammatory Hepatoprotective Neuroprotective Antioxidant Cardioprotective

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Withania *(Withania somnifera)* 	This warming, mood elevating adaptogen is one of the few non-iodine herbs known to stimulate thyroid hormone function. Especially useful for anxiety and trouble sleeping. Some preliminary lab and animal studies found that withania only enhanced T4, others determined that it increased both T3 and T4. A recent small study of people with bipolar disorder found that withania improved TSH and T4 thyroid status while those who did not take withania generally had a reduction in thyroid function.	Thyroid Modulating Adaptogen Neuroprotective Antioxidant Immunomodulator Anti-Inflammatory Cardioprotective Hepatoprotective
Wood Betany *(Stachys officinalis)* 	Considered grounding and restorative, it is used for anxiety, nervous exhaustion, insomnia and depression.	Nervine Digestive Tonic Anti-inflammatory Circulatory Stimulant

Conclusion

Hypothyroidism need not be a life sentence. It is possible for people with hypothyroidism to normalise their thyroid hormones, restore and maintain their health by using a herbal approach and taking responsibility for their wellbeing.

As with all chronic disease, with some perseverance and proper guidance and support, restoration of health is within reach. Exacerbating factors that could be present in someone's life, such as lifestyle, environment and diet, have to be taken into consideration when creating a plan for someone with an autoimmune disease.

Utilising herbs, nutrition and food allergen elimination can be an effective strategy for reducing symptoms and normalising thyroid hormones.

Resources

Alasbahi RH, Melzig MF. Forskolin and derivatives as tools for studying the role of cAMP. Pharmazie. 2012 Jan;67(1):5-13.

Bharthi V, Kavya N, Shubhashree MN, Bhat S. Herbal approach to management of thyroid disease - a review. J. Ayu. Herb. Med. Jan-Mar 2017; 3(1): 51-55

Bove M. Botanical Insights into Autoimmune Thyroid Disease. Diversified Business Communications. 2012. Available from http://cdn.naturaldispensary.com/downloads/White_Paper-Botanical_Insights_into_Autoimmune_Thyroid_Disease.pdf

British Herbal Medicine Association's Scientific Committee. British Herbal Pharmacopoeia. BHMA, Bournemouth, 1983.

Caturegli P, De Remigis A, Rose NR. Hashimoto thyroiditis: clinical and diagnostic criteria. Autoimmun Rev. 2014 Apr-May;13(4-5): 391-7. doi: 10.1016/j.autrev.2014.01.007. Epub 2014 Jan 13.

Chistiakov DA. Immunogenetics of Hashimoto's thyroiditis. J Autoimmune Dis. 2005 Mar 11;2(1):1.

de la Forêt R. Hypothyroidism. Herb Mentor Herbs in Practice [Internet] Learning Herbs c2018 [Accessed Apr 26 2018]. Available at https://herbmentor.learningherbs.com/course/herbs-in-practice/hypothyroidism/

Do I have a thyroid disorder? Thyroid Foundation [Internet] c2018 [accessed Apr 30 2018] Available from https://www.thyroidfoundation.org.au/page/24/i-suspect-i-have-a-thyroid-disorder-what-do-i-do

Farhangi MA, Dehghan P, Tajmiri S. Powdered black cumin seeds strongly improves serum lipids, atherogenic index of plasma and modulates anthropometric features in patients with Hashimoto's thyroiditis. Lipids Health Dis. 2018 Mar 27;17(1):59. doi: 10.1186/s12944-018-0704-x.

Gallego G, Goodall S, Eastman CJ. Iodine deficiency in Australia: is iodine supplementation for pregnant and lactating women warranted? MJA. 19 April 2010;192(8):461-63.

Gannon JM, Forrest PE, Roy Chengappa KN. Subtle changes in thyroid indices during a placebo-controlled study of an extract of Withania somnifera in persons with bipolar disorder. J Ayurveda Integr Med. 2014 Oct-Dec;5(4):241-5. doi: 10.4103/0975-9476.146566.

Goldner WS, Sandler DP, Yu F, Hoppin JA, Kamel F, LeVan TD. Pesticide Use and Thyroid Disease Among Women in the Agricultural Health Study. American Journal of Epidemiology. 2010;171(4):455-464. doi:10.1093/aje/kwp404.

Groves MN. Bringing the Thyroid Into Balance Naturally. Herbarium [Internet] Herbal Academy. [Accessed Apr 19 2018] Available from https://herbarium.theherbalacademy.com/2016/04/bringing-the-thyroid-into-balance-naturally/

Hechtman L. Clinical Naturopathic Medicine. Sydney:Churchill Livingstone Elsevier. 2012. p. 600

Jatwa R, Kar A. Amelioration of metformin-induced hypothyroidism by Withania somnifera and Bauhinia purpurea extracts in Type 2 diabetic mice. Phytother Res. 2009 Aug;23(8):1140-5. doi: 10.1002/ptr.2765.

Kar A, Panda S, Bharti S. Relative efficacy of three medicinal plant extracts in the alteration of thyroid hormone concentrations in male mice. J Ethnopharmacol. 2002 Jul;81(2):281-5.

Liu FH, Hwang JS, Kuo CF, Ko YS, Chen ST, Lin JD. Subclinical hypothyroidism and metabolic risk factors association: A health examination-based study in northern Taiwan. Biomed J. 2018 Feb;41(1):52-58. doi: 10.1016/j.bj.2018.02.002. Epub 2018 Mar 30.

Mahmoudi A, Ghorbel H, Feki I, Bouallagui Z, Guermazi F, Ayadi L, et al. Oleuropein and hydroxytyrosol protect rats' pups against bisphenol A induced hypothyroidism. Biomed Pharmacother. 2018 Apr 27;103:1115-1126. doi: 10.1016/j.biopha.2018.03.004. [Epub ahead of print]

Mazer NA. Interaction of estrogen therapy and thyroid hormone replacement in postmenopausal women. Thyroid. 2004;14 Suppl 1:S27-34.

Okosieme OE, Khan I, Taylor PN. Preconception management of thyroid dysfunction. Clin Endocrinol (Oxf). 2018 Apr 29. doi: 10.1111/cen.13731. [Epub ahead of print]

Panda S, Kar A. Changes in thyroid hormone concentrations after administration of ashwagandha root extract to adult male mice. J Pharm Pharmacol. 1998 Sep;50(9):1065-8.

Panda S, Kar A. Guggulu (Commiphora mukul) potentially ameliorates hypothyroidism in female mice. Phytother Res. 2005 Jan;19(1):78-80.

Panda S, Kar A. Withania somnifera and Bauhinia purpurea in the regulation of circulating thyroid hormone concentrations in female mice. J Ethnopharmacol. 1999 Nov 1;67(2):233-9.

Parvinroo S, Naghibi F, Zahediasl S, Kamalinejad M, Sabetkasaei M. The effects of seeds with hot and cold temperaments on serum thyroid hormones, corticosterone and urine vanillylmandelic acid concentrations of healthy rats. J Ethnopharmacol. 2014 Oct 28;156:216-21. doi: 10.1016/j.jep.2014.08.026. Epub 2014 Sep 1.

Patil AD. Link between hypothyroidism and small intestinal bacterial overgrowth. Indian J Endocrinol Metab. 2014 May;18(3):307-9. doi: 10.4103/2230-8210.131155.

Sheehan MT. Biochemical Testing of the Thyroid: TSH is the Best and, Oftentimes, Only Test Needed - A Review for Primary Care. Clin Med Res. 2016 Jun;14(2):83-92. doi: 10.3121/cmr.2016.1309. Epub 2016 May 26.

Sinadinos C. Herbal Therapeutic Treatments for Hypothyroidism [Internet]c2013. Northwest School for Botanical Studies [Accessed May 1 2018] Available from https://www.americanherbalistsguild.com/sites/default/files/sinadinos_christa_-_herbal_support_for_hypothyroidism.pdf

So M, MacIsaac RJ, Grossmann M. Hypothyroidism Investigation and management. Australian Family Physician. August 2012 41(8):556-62 https://www.racgp.org.au/afp/2012/august/hypothyroidism/#3

Sylver N. Hypothyroidism type 2: a new way of looking at an old problem. Townsend Letter for Doctors and Patients. 2008;305:66-73.

PURE PLANT
POWER

HERBAL EXTRACT
COMPANY

GROUNDED
IN TRADITION

Our powerful herbal healing is grounded in tradition, and we are devoted to sharing this with you.

Our practitioner-quality herbal extracts are handmade to harness the pure power of nature.

To learn more about this condition and potential remedies please contact us:

1300 443 727

pracsupport@herbalextracts.com.au

HERBALEXTRACTS.COM.AU