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Matters of Thyroid Importance

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The Prevalence of Hypothyroidism & Subclinical Hypothyroidism

Blood tests are of limited value

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- Figures and stats vary tremendously for various reasons. Age, geography, sex, …
- The stats rely on blood markers and not how someone FEELS. Hence the value of a questionnaire.
- Furthermore, blood tests may reflect hypothyroidism but not subclinical hypothyroidism where the blood tests look ‘normal’.
- If it is not possible to ‘trust’ the blood tests, because they are inaccurate a reflection of intracellular levels, just how many people are not getting the help they need? They may have been told nothing is wrong with them and be put on anti-depressants, or put it down to the aging process!
- See this summary comment from Mendoza and Hollenberg in their 2017 paper. (next slides)

Mendoza A & Hollenberg AN. New Insights into Thyroid Hormone Action. Pharmacol Ther. 2017 May ; 173: 135–145. doi:10.1016/j.pharmthera.2017.02.012. Full Paper

However, blood tests are of limited value

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New Insights into Thyroid Hormone Action

Arturo Mendoza and Anthony N. Hollenberg

However, blood tests are of limited value

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Summary and Conclusions

Over the last number of years work on thyroid hormone action has firmly established that the intracellular actions of the hormone are quite discernible from circulating levels. While the HPT axis moves to keep circulating TH levels within a tight range based on a genetic set point with environmental cues, the intracellular availability of T3 is based on a myriad of other determinants.

Mendoza A & Hollenberg AN. New Insights into Thyroid Hormone Action. Pharmacol Ther. 2017 May ; 173: 135–145. doi:10.1016/j.pharmthera.2017.02.012. Full Paper

The estimated prevalence of hypothyroidism

- A review of UK national databases found the prevalence of treated hypothyroidism increased from **2.3% (1.4 million)** to **3.5% (2.2 million)** of the total UK population between 2005 and 2014 [Razvi, 2019].
- Geographical variation of treated hypothyroidism across the UK: London having the lowest (**1.4%**) and the Western Isles of Scotland having the highest (**6.3%**) prevalence.
- The prevalence of treated hypothyroidism was independently related to health areas, with a higher proportion of individuals who were female, white, and obese, and negatively associated with prevalent cigarette smoking.
- The prevalence of treated hypothyroidism was significantly associated with the frequency of prevalent atrial fibrillation but not with other major health conditions, including ischaemic heart disease and osteoporosis.

- Razvi, S., Korevaar, T.I.M. and Taylor, P. (2019) Trends, determinants, and associations of treated hypothyroidism in the United Kingdom, 2005-2014. *Thyroid* **29**(2), 174-182. [Abstract]

The estimated prevalence of subclinical hypothyroidism

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- Even using the crude method of blood testing TSH, The British Thyroid Association (BTA) notes that subclinical hypothyroidism affects **5–10%** of the population (Okosieme, 2015). That's **3.398 to 6.796 million** in Britain!
- The researchers refer to the "role of combination therapy with L-T4 and liothyronine (L-T3) in individuals who are persistently dissatisfied with L-T4 therapy."
- The prevalence of subclinical hypothyroidism increases in women and with increasing age. (Pearce, 2013; Peeters, 2017)

- Okosieme O, Gilbert J, Abraham P, Boelaert K, Dayan C, Gurnell M, Leese G, McCabe C, Perros P, Smith V, Williams G, Vanderpump M. Management of primary hypothyroidism: statement by the British Thyroid Association Executive Committee. Clin Endocrinol (Oxf). 2016 Jun;84(6):799-808. Full Paper
- Pearce, S. European Thyroid Association (ETA) Guideline: Management of subclinical hypothyroidism. European Thyroid Journal 2013, 2, 215-228. Full Paper
- Peeters, R.P. Subclinical hypothyroidism. N Engl J Med 2017, 376(26), 2556-2565. View Link

The estimated prevalence of subclinical hypothyroidism

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- Observational study in an opportunistic sample of 45 primary care centres in Castile & León.
- TSH was determined in people aged ≥35 years that attended a primary care physician and had a blood test for any reason.
- Confirmatory analysis included free thyroxine (FT4) and anti-thyroid peroxidase antibody determination.

RESULTS

- A total of 3,957 analyses were carried out, 63% in women. The mean age was 61.5 years. The median TSH value was 2.3 µIU/mL (2.5 µIU/mL in women and 2.1 µIU/mL in men), with a rising trend with age.
- TSH values were higher in undiagnosed or untreated subclinical hypothyroidism than in patients under treatment. The lowest levels were found in euthyroidism.
- **The prevalence of subclinical hypothyroidism was 9.2%** (95%CI: 8.3-10.2), and **hypothyroidism was 3 times higher in women than in men** (12.4% versus 3.7%).
- **Hypothyroidism increased with age, reaching a peak of 16.9% in women aged 45 to 64 years.**

The estimated prevalence of subclinical hypothyroidism

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Conclusions

- The prevalence of subclinical hypothyroidism in our sample was high and in the upper limits of values found in previous studies.
- Proper diagnosis and treatment are important because of the risk of progression to hypothyroidism and the association with multiple diseases and other risk factors.

Mariscal Hidalgo AI, Lozano Alonso JE, Vega Alonso T; nombre del Grupo de Investigación del Hipotiroidismo Subclínico en Castilla y León. [Prevalence and clinical characteristics of subclinical hypothyroidism in an opportunistic sample in the population of Castile-León (Spain)]. [Article in Spanish] Gac Sanit. 2015 Mar-Apr;29(2):105-11. doi: 10.1016/j.gaceta.2014.10.007. Epub 2014 Dec 15. View Abstract

The estimated prevalence of subclinical hypothyroidism

- If the percentages in this study are applied to the population of the UK, then the **16.9%** of women aged 45 to 64 years then this translates into:
- In 2016, of the 65,648,100 people in the UK, there were 33,270,400 females. Approx 16.7 million UK citizens were aged between 45 and 64, and if half of these are women then this equates to roughly 8.35 million women.
- **16.9%** of 8.35 million is **1.4 million women** who are within the statistical range of having hypothyroidism between the ages of 45 to 64, let alone sub-clinical hypothyroidism and let alone other age groups.

- **The ultimate number of women in the UK with sub-clinical or clinical hypothyroidism is in the millions.**

https://www.statista.com/statistics/281240/population-of-the-united-kingdom-uk-by-gender/

The estimated prevalence of subclinical hypothyroidism – fluoride related

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- In many areas of the world, hypothyroidism is a major health concern and in addition to other factors-such as iodine deficiency-fluoride exposure should be considered as a contributing factor.
- We found that higher levels of fluoride in drinking water provide a useful contribution for predicting prevalence of hypothyroidism. We found that practices located in the West Midlands (a wholly fluoridated area) are nearly twice as likely to report high hypothyroidism prevalence in comparison to Greater Manchester (non-fluoridated area).
- The findings of the study raise particular concerns about the validity of community fluoridation as a safe public health measure.

Peckham S, Lowery D, Spencer S. Are fluoride levels in drinking water associated with hypothyroidism prevalence in England? A large observational study of GP practice data and fluoride levels in drinking water. J Epidemiol Community Health. 2015 Jul;69(7):619-24. doi: 10.1136/jech-2014-204971. Epub 2015 Feb 24. View Abstract

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Signs & Symptoms of Under Functioning Thyroid Hormones

Thyroid Questionnaire

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History

- ___ My family (parent, sibling, child) has a history of thyroid disease
- ___ I've had a thyroid problem (i.e., hyperthyroidism, Graves' disease, Hashimoto's thyroiditis, post-partum thyroiditis, goiter, nodules, thyroid cancer) in the past
- ___ A member of my family or I have currently or in the past been diagnosed with an autoimmune disease
- ___ I have had radiation treatment to my head, neck, chest, tonsil area, etc.
- ___ I grew up, live, or work near or at a nuclear plant
- ___ Women: I have a history of infertility or miscarriage

- ___ Total (out of 5 or 6)

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Thyroid Questionnaire (contin)

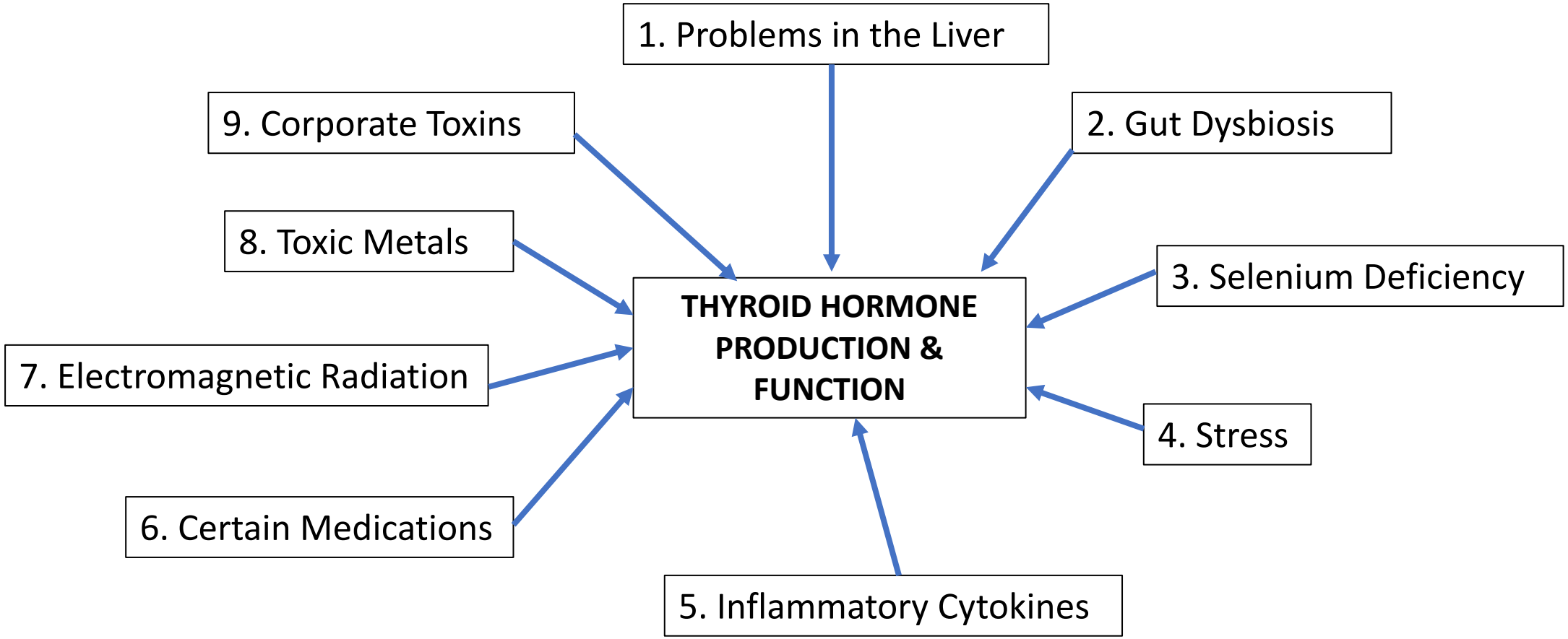
- **Signs and Symptoms**
- ___ I am gaining weight for no clear reason or am unable to lose weight with a diet and exercise programme
- ___ My "normal" body temperature is low (below 98.2° F / 36.7° C when I take it)
- ___ My hands and feet are cold to the touch and I frequently feel cold when others do not
- ___ I feel fatigued or exhausted more than normal
- ___ I have a slow pulse, and/or low blood pressure
- ___ I have been told I have high cholesterol
- ___ My hair is rough, coarse dry, breaking, brittle, or falling out
- ___ My skin is rough, coarse, dry, scaly, itchy, and thick
- ___ My nails have been dry and brittle, and break more easily
- ___ My eyebrows appear to be thinning, particularly the outer portion
- ___ My voice has become hoarse and/or 'gravelly'
- ___ I have pains, aches, stiffness, or tingling in joints, muscles, hands and/or feet
- ___ I have carpal tunnel syndrome, tendonitis, or plantar fasciitis
- ___ I am constipated (less than 1 bowel movement daily)
- ___ I feel depressed, restless, moody, sad
- ___ I have difficulty concentrating or remembering things
- ___ I have a low sex drive
- ___ My eyes feel gritty, dry, light-sensitive
- ___ My neck or throat feels full, with pressure, or larger than usual, and/or I have difficulty swallowing
- ___ I have puffiness and swelling around the eyes, eyelids, face, feet, hands and feet
- ___ Women: I am having irregular menstrual cycles (longer, or heavier, or more frequent)
-
- ___ Total (out of 20 or 21)

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9 Factors that Negatively Affect Thyroid Hormones

9 Factors that Negatively Affect Thyroid Hormones



Minimising Inflammation

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- Anti-inflammatory herbs & plant extracts: Curcuminoids (turmeric extract), Boswellia serrata extract, propolis, green tea extract, ginger extract, rosemary extract, celery seed extract, etc.
- Anti-inflammatory vits & mins: Selenium, Zinc, Copper, Magnesium, Tocotrienols, Vitamin D & A & E, Manganese, Vitamin B6
- Anti-inflammatory fatty acids: EPA, DHA, GLA
- Anti-inflammatory probiotics: Lactobacillus & bifidus strains
- Proteolytic enzymes, colostrum, mushroom extracts

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Key Nutrients for Thyroid Hormone Function

Key Nutrients for Thyroid Hormone Function

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Iodine - is the building block and key ingredient of thyroid hormone. (150mcg per day)

Selenium - Iodine requires selenium in order to be synthesised properly into thyroid hormone. Selenium is a pillar for thyroid functioning, as an active component of thyroid selenoproteins. (150-300mcg per day)

Tyrosine - Thyroid Hormones are amine hormones, and their synthesis is based on the amino acid tyrosine: iodotyrosines. 4 molecules of iodine = T4, 3 molecules of iodine = T3.

Vitamin A - Vitamin A deficiency causes thyroid hypertrophy with a reduction of iodine uptake, of thyroglobulin and of thyroid hormones synthesis. Combined iodine and vitamin A-deficient diets produce greater impairments in thyroid metabolism than either isolated iodine or vitamin A-deficient diets. Retinyl palmitate administration decreases thyroid gland size and serum thyroid hormones and conversely increases thyroidal iodine uptake and hepatic conversion of T4 to T3 in rats. There are many levels where RA can interact with the physiology of hypothalamo–pituitary–thyroid axis.

Key Nutrients for Thyroid Hormone Function

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Zinc - the interaction of zinc with thyroid hormones is complex. Zinc is needed for thyroid hormone production. A deficiency in zinc can result in hypothyroidism. Zinc absorption by the body requires thyroid hormone. When used alone or in combination with selenium, 30 mg of zinc per day may help enhance thyroid function in people with Hashimoto's disease. Hypothyroidism can induce zinc deficiency as well. (10-15mg per day)

Copper - Copper is essential for thyroid function and is needed for the thyroid gland to function properly. Copper deficiency affects brain development and the hypothalamus' ability to regulate thyroid hormones. Copper is directly and indirectly needed for thyroid hormone synthesis. It stimulates the production of thyroxine hormone T4 and controls T4 absorption in blood cells. Copper salts act as a catalyst to the iodination of tyrosine. Hypothyroid patients had significantly decreased concentration of zinc and copper. Hence, diet rich in trace elements, viz. zinc and copper should be supplied to patients of hypothyroidism in order to maintain normal thyroid hormone function. (1-2mg per day)

Key Nutrients for Thyroid Hormone Function

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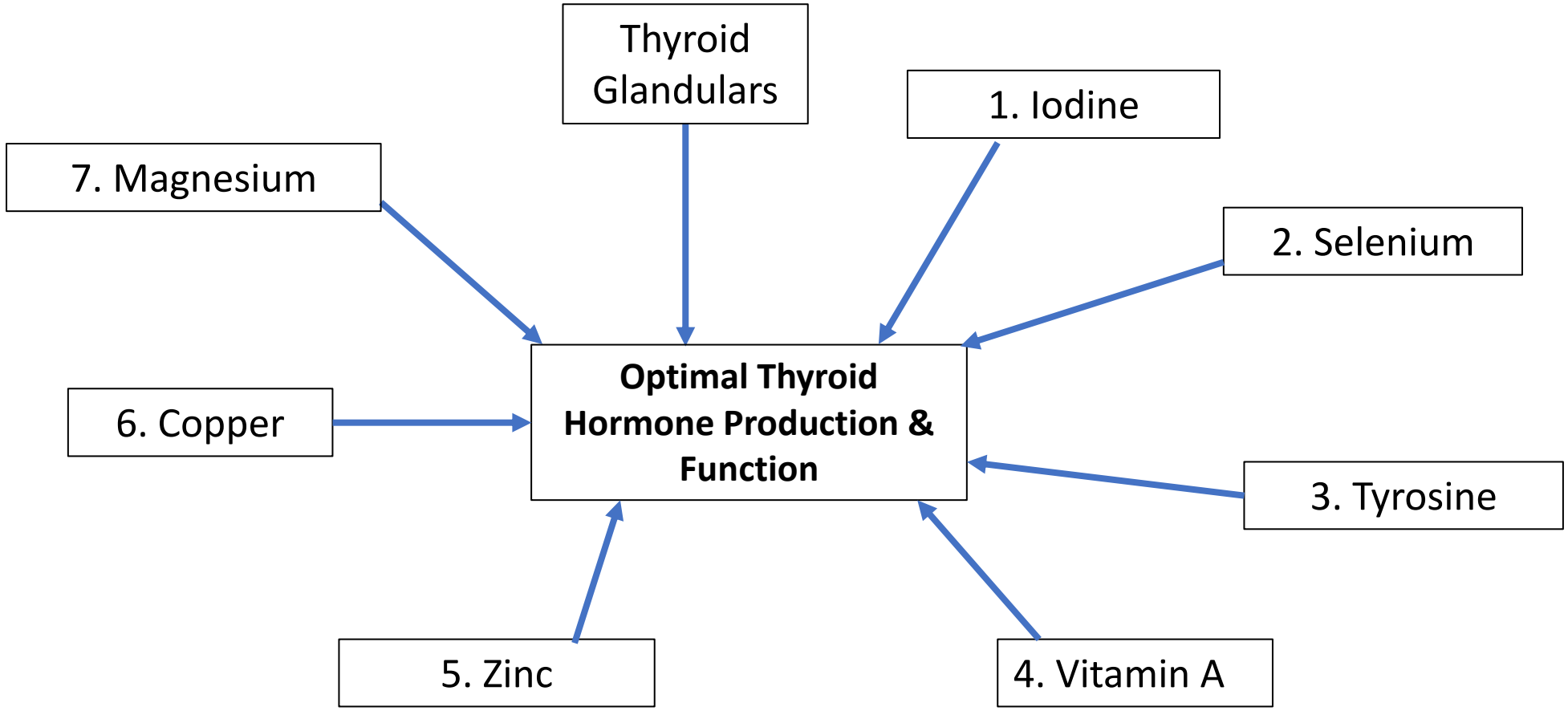
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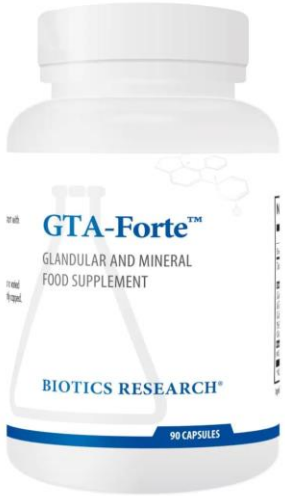
Key Nutrients for Thyroid Hormone



Key Thyroid Support



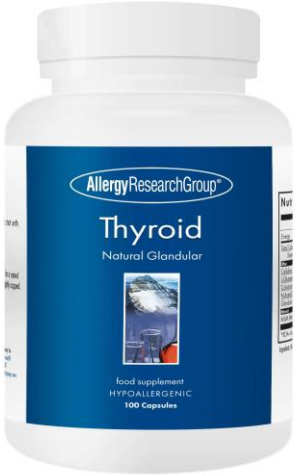
- [Meda-Stim x 100 Capsules | Nutri-Link.co.uk (nutrilink.co.uk)]
- 2 with breakfast & 2 with lunch



- [GTA Forte x 90 Capsules | Nutri-Link.co.uk (nutrilink.co.uk)]
- 1 with breakfast (or more as needed)

OR

- [Thyroid Natural Glandular x 100 Capsules | Nutri-Link.co.uk (nutrilink.co.uk)]
- 1 with breakfast (or more as needed)



Summary Action Steps to Consider to Protect Thyroid Health & Thyroid Hormone Function

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- Assess gut & liver functioning. Correct all imbalances where possible.
- Assess and address ‘stress’. Aim for a range of activities that promote sympathetic & parasympathetic nervous system balance in each 24 hour cycle.
- Minimise inflammation from all sources.
- Minimise EMFs and computer time.
- Minimise exposure to heavy metals & ‘corporate’ toxins (e.g. remove metal dental fillings, use glass not plastic, eat organic food, use a water filter).
- Support with thyroid glandulars & ensure optimal levels of iodine, selenium, vitamin A, zinc, copper & magnesium.

Summary

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- There is a relatively high incidence of hypothyroidism & subclinical hypothyroidism in Britain.
- There is limited value of blood markers: TSH, FT4, FT3.
- There are multiple signs and symptoms of thyroid hormone under-functioning.
- There is a complex interplay of environmental factors combined with thyroid hormone transporters & receptors & deiodinase enzymes.
- There are known, but limited, key nutrients that are required to normalise thyroid gland output & thyroid hormone function.
- There are many anti-inflammatory & antioxidant nutrients that confer protection in one way or another to the thyroid gland and the metabolism of thyroid hormones.

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THE END