

PATIENT: XXXXXXXXXXXXXXXXXXXX

TEST REF: TST-NL-XXXX

TEST NUMBER: T-NL-XXXXX (XXXXXXXXXX)

COLLECTED: XX/XX/XXXX

PRACTITIONER:

GENDER: XYZ

RECEIVED: XX/XX/XXXX

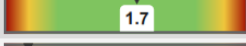
XXXXXXXXXXXXXXXXXX

AGE: XX

TESTED: XX/XX/XXXX

XXXXXXXXXXXXXXXXXXXXXX

TEST NAME: Elite Thyroid Profile (T4, Tgbn, TSH, fT3, fT4, TP0ab) - BLOODSPOT

TEST NAME	RESULTS 12/09/20	RANGE
Blood Spot Thyroids		
Thyroglobulin	 17.1	3-40 ng/mL (optimal 3-10)
Total T4	 6.5	5-10.8 µg/dL
Free T4	 1.7	0.7-2.5 ng/dL
Free T3	 2.4	2.4-4.2 pg/mL
TSH	 3.0	0.5-3.0 µU/mL
TPOab	 42	0-150 IU/mL (70-150 borderline)

<dl = Less than the detectable limit of the lab. N/A = Not applicable; 1 or more values used in this calculation is less than the detectable limit. H = High. L = Low.

Therapies

Xanax

TEST NAME: Elite Thyroid Profile (T4, Tgbn, TSH, fT3, fT4, TP0ab) - BLOODSPOT

TEST REPORT | Reference Ranges

Disclaimer: Supplement type and dosage are for informational purposes only and are not recommendations for treatment. For a complete listing of reference ranges, go to www.zrtlab.com/reference-ranges.

TEST NAME	WOMEN
Thyroglobulin	3-40 ng/mL (optimal 3-10)
Total T4	5-10.8 µg/dL
Free T4	0.7-2.5 ng/dL
Free T3	2.4-4.2 pg/mL
TSH	0.5-3.0 µU/mL
TPOab	0-150 IU/mL (70-150 borderline)

Lab Comments

Thyroglobulin is within normal range, but higher than the range considered optimal, suggesting less than optimal consumption of iodine over the past several weeks, or blockage of iodine uptake or utilization by goitrogens found in common foods (e.g. cruciferous vegetables, soy), industrial contaminants (e.g. perchlorate, polybrominated and polychlorinated biphenyls), and cigarette smoke (thiocyanogens). Blood thyroglobulin is considered a good marker of the average iodine level over previous weeks. Excluding thyroid cancer, wherein thyroglobulin is usually very high, a high thyroglobulin ranging from >10-50 ng/ml suggests low iodine, inhibition of iodine uptake into the thyroid gland, or inhibition thyroglobulin iodination by thyroid peroxidase. Thyroglobulin is a tyrosine-rich protein produced exclusively in the follicular cells of the thyroid gland. Its synthesis is directed by TSH released from the hypothalamus in response to low circulating levels of T3 and T4. Following transport of iodine into the thyroid gland the iodide is converted by thyroid peroxidase and H₂O₂ to iodine, which then covalently binds to tyrosine residues on thyroglobulin. The iodinated thyroglobulin is stored in the colloidal lumen of the thyroid gland before it is eventually converted to thyroid hormones, T3 and T4. Poorly iodinated thyroglobulin is more likely to diffuse out of the lumen directly into the bloodstream instead of being stored for future thyroid hormone synthesis. A small amount of thyroglobulin is normally present in the bloodstream, but levels exceeding 10 ng/ml indicate low iodine levels in the bloodstream or normal iodine levels but poor uptake and utilization for thyroid hormone synthesis. Goitrogens present in many foods (e.g. thiocyanates and nitrates present in cruciferous vegetables and isoflavones such as genistein found in soybeans) and in some environmental chemicals (e.g. perchlorates, bisphenols) and medicines can inhibit the uptake or organification of iodine into thyroglobulin. If iodine levels in urine are low and thyroglobulin is elevated this would indicate an iodine deficiency that should be treated with iodine prophylaxis.

Total T4 is within the expected reference range, but low-normal. At baseline in the absence of T4 therapy (T4 alone or T4/T3 combination therapy) the total T4 is a good marker of the thyroid glands ability to synthesize thyroid hormones. Outside of frank hypothyroidism, lower T4 synthesis by the thyroid gland can be caused by one or more of the following: 1) T3 therapy (e.g. Cytomel) that suppresses TSH and thus thyroid gland production of T4; 2) Hashimoto's thyroiditis (seen as elevated TPO antibodies), which causes destruction and fibrosis of the thyroid gland; 3) low iodine, which is essential for thyroid hormone synthesis; 4) low iodine uptake and iodine organification by the thyroid gland caused by excessive consumption of goitrogens (e.g. soy isoflavones, cruciferous vegetables); 5) low catalytic activity of thyroid peroxidase (enzyme that catalyzes thyroid hormone synthesis from iodine and thyroglobulin-bound tyrosine) due to iron deficiency/low ferritin; 6) and/or overall inhibition of thyroid hormone synthesis caused by excessive iodine supplementation (Wolff-Chaikoff Effect). If the low total T4 is associated with symptoms of thyroid deficiency, consider thyroid hormone therapy or increasing dosage if already taking.

Free T4 is within normal range. Minimal or no symptoms are reported. Please evaluate the TSH as T4 levels will remain within normal range despite high TSH levels.

Free T3 is within normal range. If symptoms of thyroid deficiency are problematic this may be due to a "functional" thyroid deficiency, meaning that the thyroid hormone is not functioning normally at the tissue level.

TSH is within high-normal range. Although most laboratories have a TSH range of 0.35-5.50, new studies are finding that the mean and median values are 1.0-1.5mU/l. Some experts believe that TSH should be kept near the median value of healthy individuals. TSH levels >3.0 are now considered abnormal due to changes by the endocrinology association - see www.aace.com for more information. Thyroid therapy may be worthwhile considering if T4 and/or T3 are low and symptoms of thyroid deficiency are problematic.

Thyroid peroxidase (TPO) antibodies are low indicating that Hashimoto's autoimmune thyroiditis is unlikely.