NutriPATH
INTEGRATIVE PATHOLOGY SERVICES

THYROID PROFILE – Extensive (24 hour urine)

Thyroid abnormalities are one of the most common endocrine disorders affecting millions worldwide. Thyroid hormones are well known for their role in basal metabolic rate, development and growth. Hypothyroidism affects approximately 4-5% of the population whilst estimates for hyperthyroidism are 0.4-2%. Thyroid function testing should be considered in all high risk populations including the ageing population, postpartum women, those with autoimmune disorders, those with a family history of autoimmune thyroid disorders and patients with previous head, neck or thyroid surgery.

Thyroid

Thyroid hormones are well known for their role in basal metabolic rate; however, they affect development and growth. The thyroid hormones interact with receptors found in the nucleus of every cell of the body and this interaction leads to the turning on and off of many genes and ultimately to the modification of many bodily functions. Therefore, it is understandable that abnormalities in the level of thyroid hormones can lead to a diverse array of symptoms involving the heart, brain, skin and reproductive systems.

Hypothyroidism

Hypothyroidism is the most common disorder with the prevalence in normal populations with optimal iodine levels being approximately 4-5%. It is most common in women and increases with age. In populations greater than 75 years of age, estimates are as high as 18.5%. There are also special populations with a higher risk of developing hypothyroidism including postpartum women, individuals with a family history of autoimmune thyroid disorders, patients with previous head and neck or thyroid surgery, other autoimmune disorders (type I diabetes, adrenal insufficiency, celiac disease, vitiligo, pernicious anaemia). The symptoms for hypothyroidism include the well-known characteristics such as fatigue, cold extremities, weight gain and poor memory. In addition, hypothyroidism is also associated with many conditions such as hypertension, cardiovascular disease, menstrual disorders, infertility, rhinitis and urticaria.

Hyperthyroidism and Autoimmune Disease of the Thyroid Gland

Hyperthyroidism is a much less common disorder with estimates being 0.4-2%. Symptoms for hyperthyroidism include tachycardia, anxiety, weight loss and heat sensitivity. The most common causes include Graves' disease, toxic adenoma, toxic multinodular goitre and painless postpartum lymphocytic thyroiditis (PPLT) which are caused by autoimmune thyroiditis. Autoimmune disease of the thyroid can cause both hypo and hyperthyroidism, as antibodies can either block or stimulate the thyroid receptors. Estimates for the presence of thyroid antibodies are 12.4%.

SYMPTOMS AND CONDITIONS ASSOCIATED WITH THYROID DYSFUNCTION	
Hypothyroidism	**Hyperthyroidism**
Fatigue, Poor concentration	Fatigue, Poor concentration
Weight gain	Weight loss
Cold intolerance	Heat intolerance
Skin and hair dryness, hair loss	Increased sweating
Constipation	Frequent bowel movement
Depression	Anxiety and restlessness
Apathy	Irritability
Memory impairment	Insomnia
Muscle cramps and myalgia	Muscle weakness
Oedema	Dyspnea
Bradycardia, dyslipidemia	Palpitations, hypertension
Irregular/heavy menstrual periods	Irregular menstrual periods
Depressed ovarian function, infertility	Depressed ovarian function

THYROID HORMONE PROFILE - Extensive (24 hour urine) [Code 1220]

- T4, T3, T4/T3 ratios; Tyrosine, Iodine, Selenium

T4 - Prohormone (inactive) form of thyroid hormone which is converted to T3 in liver, kidney and muscles through a process of 'de-iodination'.
T3 - The active form of thyroid hormone acting at the cellular level affecting function of a number of bodily tissues.
Free thyroid hormones reflect the bioavailable or free form of thyroid hormones that are not protein bound.
Iodine and selenium, essential minerals and an amino acid tyrosine are required for conversion of T4 to an active T3. Iodine is required for infant development, during pregnancy and lactation and thyroid function.

Other thyroid tests available

- **Thyroid Profile - Basic (serum) [1113]:** TSH, free T4, free T3
- **Thyroid Profile - Extensive (serum) [1114]:** TSH, free T4, free T3; reverse T3, ratios, TPO Ab, ATG Ab, TSH Receptor Abs
- **Reverse T3 (serum) [1112]:** Reverse T3
- **Thyroid Hormone Profile – Basic (24 hour or spot urine):** T4, T3, T4/T3 ratios
- **Iodine – Random (urine) [5016]:** Iodine (random)
- **Iodine – Loading (urine) [5015]:** Iodine (random), Iodine (post loading), Iodine excretion %

How to order a test kit:

To order a test kit simply request the test name and/or test code on a NutriPATH request form and have the patient phone NutriPATH Customer Service on 1300 688 522.

NutriPATH
Integrative Pathology Services

Phone **1300 688 522** for further details
www.nutripath.com.au