

# Autoimmune thyroid disease (AITD)

## THYROID GLAND:

a butterfly-shaped organ located in the base of the neck



## AUTOIMMUNE THYROID DISEASE

is the most common cause of thyroid dysfunction in Australia<sup>1</sup>



## PATHOGENESIS OF AITD<sup>2</sup>

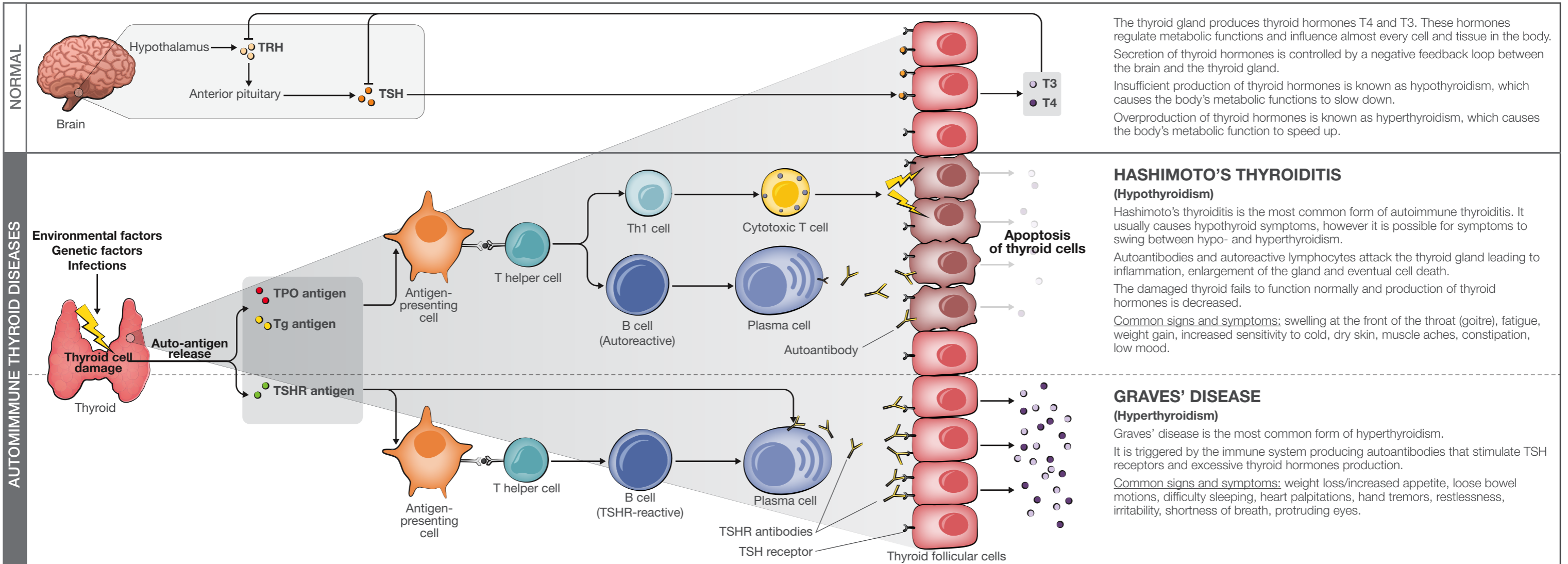


THYROID DISORDERS AFFECT

**10X**  
MORE WOMEN THAN MEN<sup>3</sup>



## PATHOGENESIS OF AITD<sup>1-6</sup>



The thyroid gland produces thyroid hormones T4 and T3. These hormones regulate metabolic functions and influence almost every cell and tissue in the body. Secretion of thyroid hormones is controlled by a negative feedback loop between the brain and the thyroid gland. Insufficient production of thyroid hormones is known as hypothyroidism, which causes the body's metabolic functions to slow down. Overproduction of thyroid hormones is known as hyperthyroidism, which causes the body's metabolic function to speed up.

### HASHIMOTO'S THYROIDITIS (Hypothyroidism)

Hashimoto's thyroiditis is the most common form of autoimmune thyroiditis. It usually causes hypothyroid symptoms, however it is possible for symptoms to swing between hypo- and hyperthyroidism. Autoantibodies and autoreactive lymphocytes attack the thyroid gland leading to inflammation, enlargement of the gland and eventual cell death. The damaged thyroid fails to function normally and production of thyroid hormones is decreased. Common signs and symptoms: swelling at the front of the throat (goitre), fatigue, weight gain, increased sensitivity to cold, dry skin, muscle aches, constipation, low mood.

### GRAVES' DISEASE (Hyperthyroidism)

Graves' disease is the most common form of hyperthyroidism. It is triggered by the immune system producing autoantibodies that stimulate TSH receptors and excessive thyroid hormones production. Common signs and symptoms: weight loss/increased appetite, loose bowel motions, difficulty sleeping, heart palpitations, hand tremors, restlessness, irritability, shortness of breath, protruding eyes.

T3: triiodothyronine, T4: thyroxine, TRH: thyrotropin-releasing hormone; TSH: thyroid-stimulating hormone; TPO: thyroid peroxidase; Tg: thyroglobulin; TSHR: thyroid-stimulating hormone receptor

## NUTRITIONAL SUPPORT FOR AITD

### SELENIUM<sup>7,8</sup>

- Often deficient in patients with AITD
- Antioxidant
- Anti-inflammatory
- Immunomodulatory
- Decreases thyroid autoantibodies
- Prevents apoptosis of thyroid follicular cells

### VITAMIN D<sup>9</sup>

- Low levels associated with Hashimoto's thyroiditis
- Low levels associated with high TSH

### MYO-INOSITOL<sup>10</sup>

- Improves the function of selenium in lowering thyroid autoantibodies
- Reduces TSH levels

### ALPHA-LIPOIC ACID<sup>11</sup>

- Antioxidant
- Anti-inflammatory
- Improves conversion of T4 to T3 in peripheral tissues

### MAGNESIUM + SELENIUM + COENZYME Q10<sup>12</sup>

- Coenzyme Q10 is severely depleted in hypothyroidism
- Long-term supplementation of this combination helps:
  - Correction of musculoskeletal signs and symptoms
  - Normalise thyroid morphology
  - Decrease thyroid autoantibodies