

## REDUCED PERIPHERAL CONVERSION OF T<sub>4</sub> TO T<sub>3</sub>

### PHYSIOLOGIC

fetus and early neonate  
? elderly

### PATHOLOGIC

starvation  
major systemic illness  
postoperative

### PHARMACOLOGIC

propylthiouracil  
glucocorticoids  
propranolol  
contrast agents  
amiodarone

## THYROID FUNCTION TESTS

### Total T<sub>4</sub> measurements are elevated in:

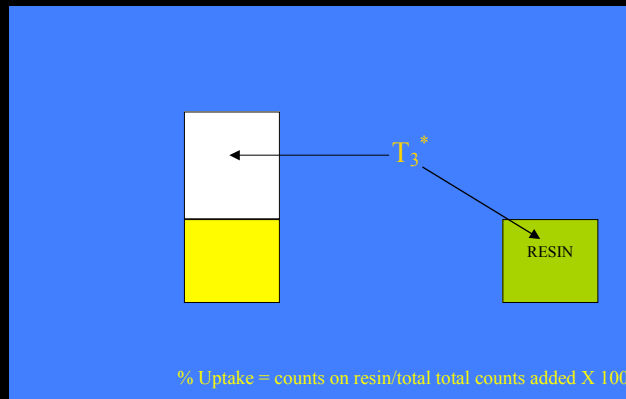
1. Hyperthyroidism-increased total and free T<sub>4</sub>
2. Elevated TBG-increased total T<sub>4</sub> and normal free T<sub>4</sub>
  - a. Congenital: X-linked dominant
  - b. Pregnancy
  - c. Liver diseases
  - d. Drugs: estrogens, tamoxifen, raloxifene
3. Acute medical or psychiatric illness-uncommon
4. Thyroid hormone resistance (Refetoff syndrome)
  - a. Generalized resistance
  - b. Pituitary resistance

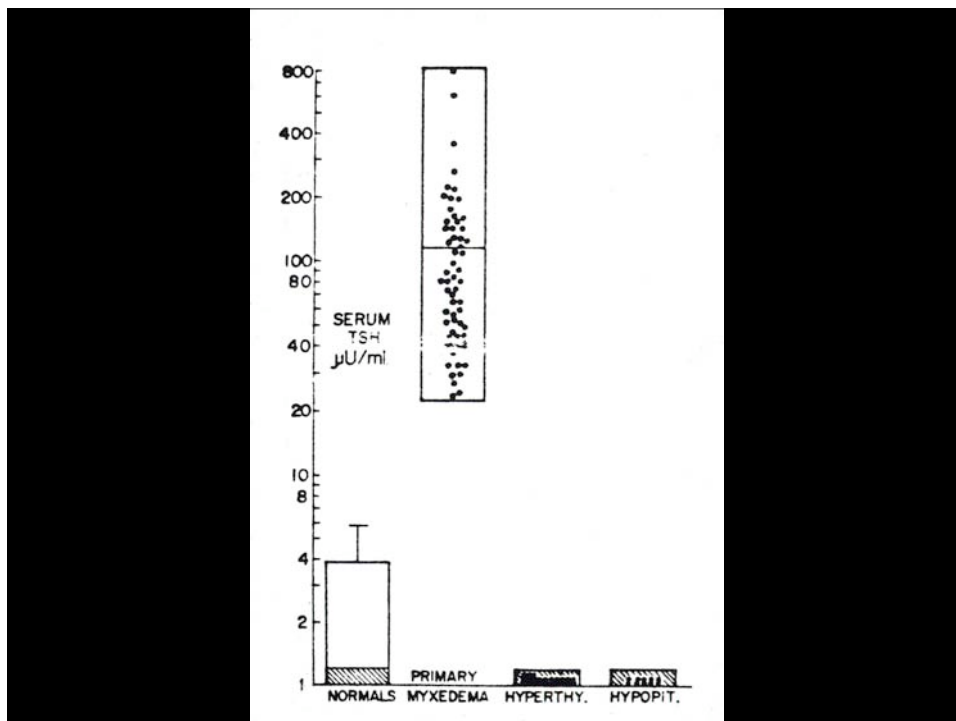
### Total T<sub>4</sub> measurements are decreased in:

1. Hypothyroidism-decreased total and free T<sub>4</sub>
2. Decreased TBG-decreased total and normal free T<sub>4</sub>
  - a. Congenital: X-linked
  - b. Acromegaly
  - c. Nephrotic syndrome
  - d. Chronic liver disease
  - e. Drugs: androgens, glucocorticoids
3. Inhibition of thyroidal T<sub>4</sub> release without hypothyroidism-exogenous T<sub>4</sub> administration
4. Acute medical illness-free T<sub>4</sub> high, normal, or low

$$\text{FREE T4} = \text{TOTAL T4} \times \% \text{ FREE}$$

$$\text{FREE T4 INDEX} = \text{TOTAL T4} \times \text{THBR}$$



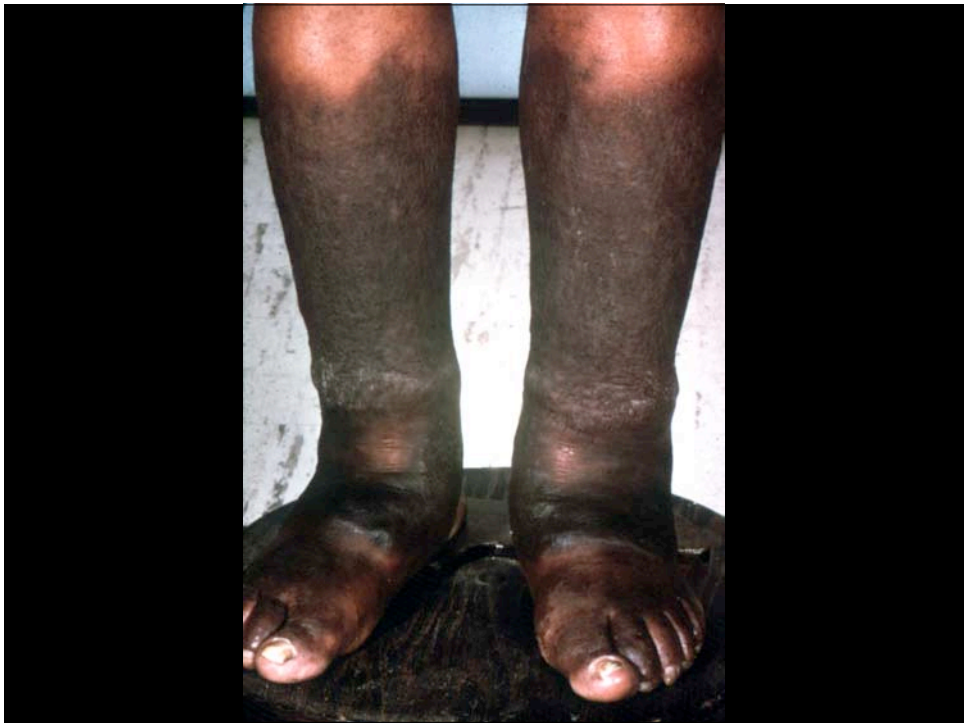


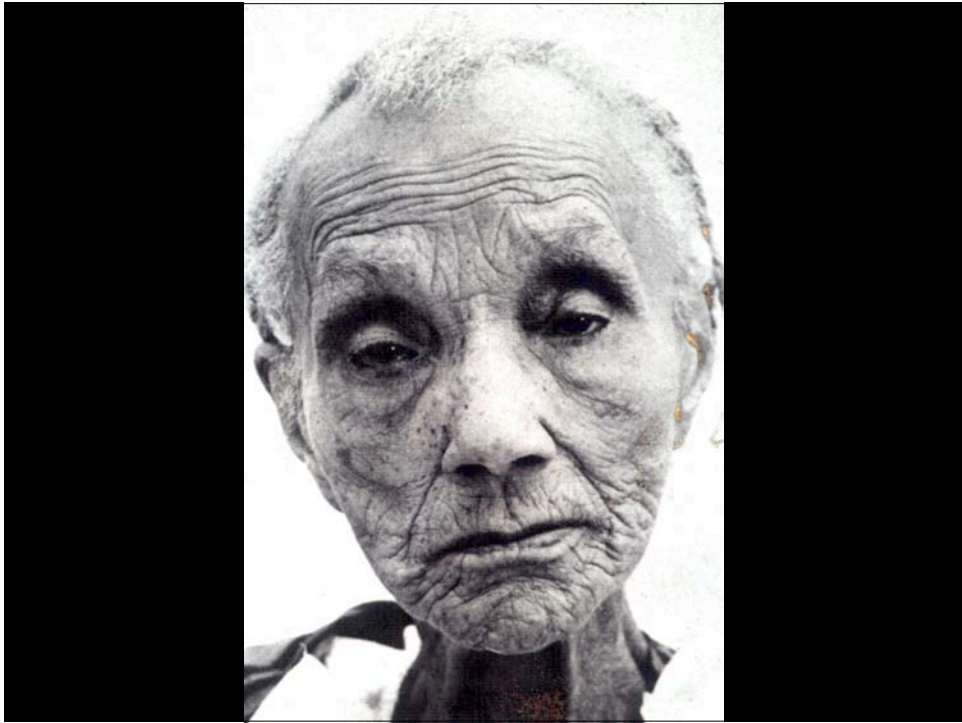
A lady, aged twenty, became affected with some symptoms which were supposed to be hysterical. Her pulse had become singularly rapid, she complained of weakness on exertion, and began to look pale and thin. It was observed that the eyes assumed a singular appearance, for the eyeballs were apparently enlarged. In a few months, a tumour, of horseshoe shape, appeared on the front of the throat and exactly in the situation of the thyroid gland.

*Robert J. Graves, M.D.*  
1835









## AUTOANTIBODIES FOUND IN PATIENTS WITH AUTOIMMUNE THYROID DISEASE

Antithyroglobulin

Antimicrosomal/thyroid peroxidase

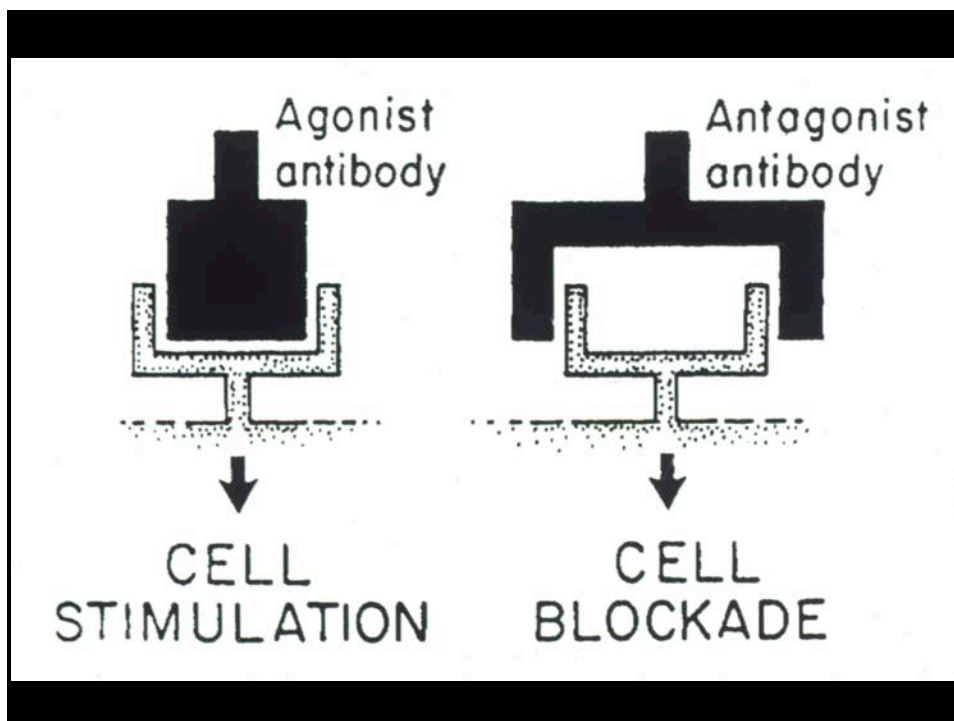
Anti-TSH receptor

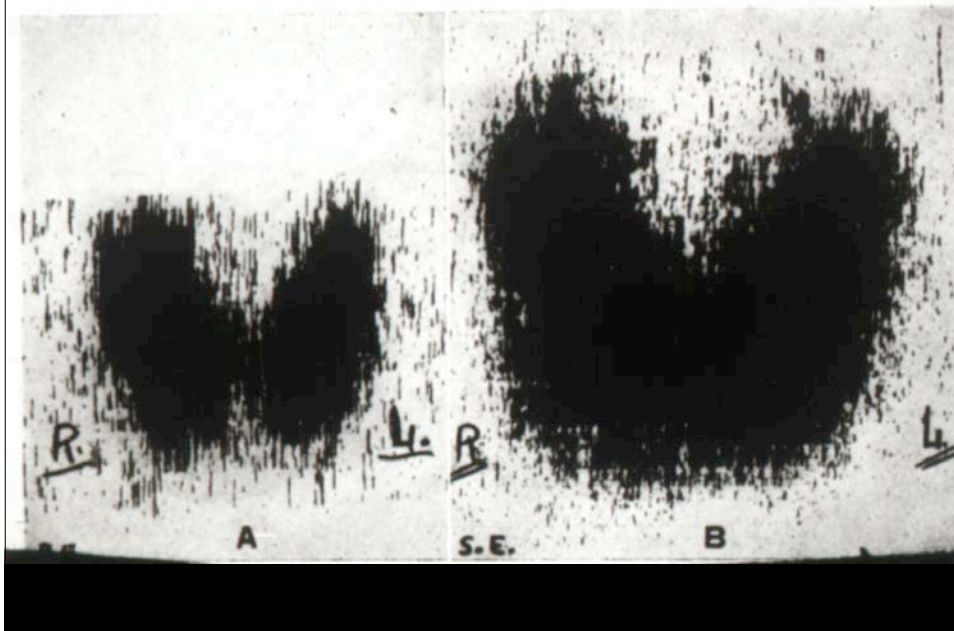
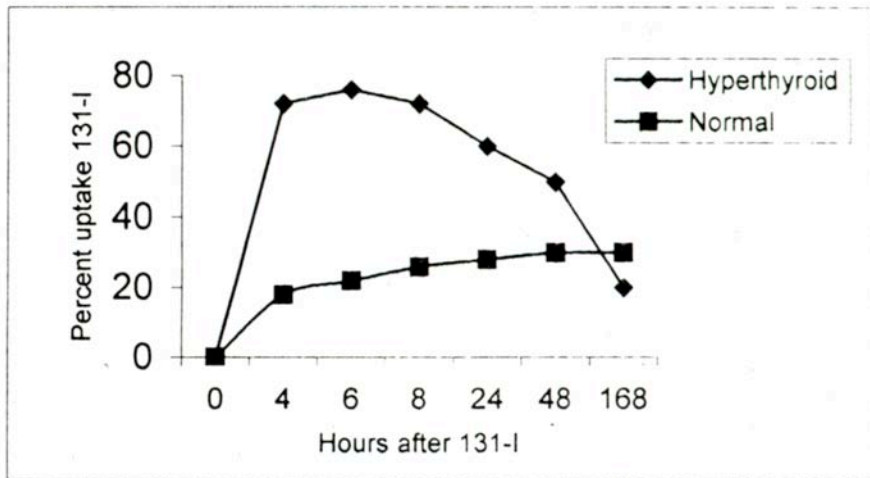
Thyroid- stimulating (TSAb)

TSH-binding inhibiting (TBII)

Anti-T<sub>4</sub> or T<sub>3</sub>

Anti-TSH







## EPIDEMIOLOGY OF TAO

Toxic diffuse goiter

Female: male ratio 5:1

Peak 20-30 years of age

Thyroid-associated ophthalmopathy

Female: male ratio 2:1

Peak 40-50 years of age

Risk factors

Cigarette smoking

<sup>131</sup>I therapy  
Active/progressive disease  
Hypothyroid

