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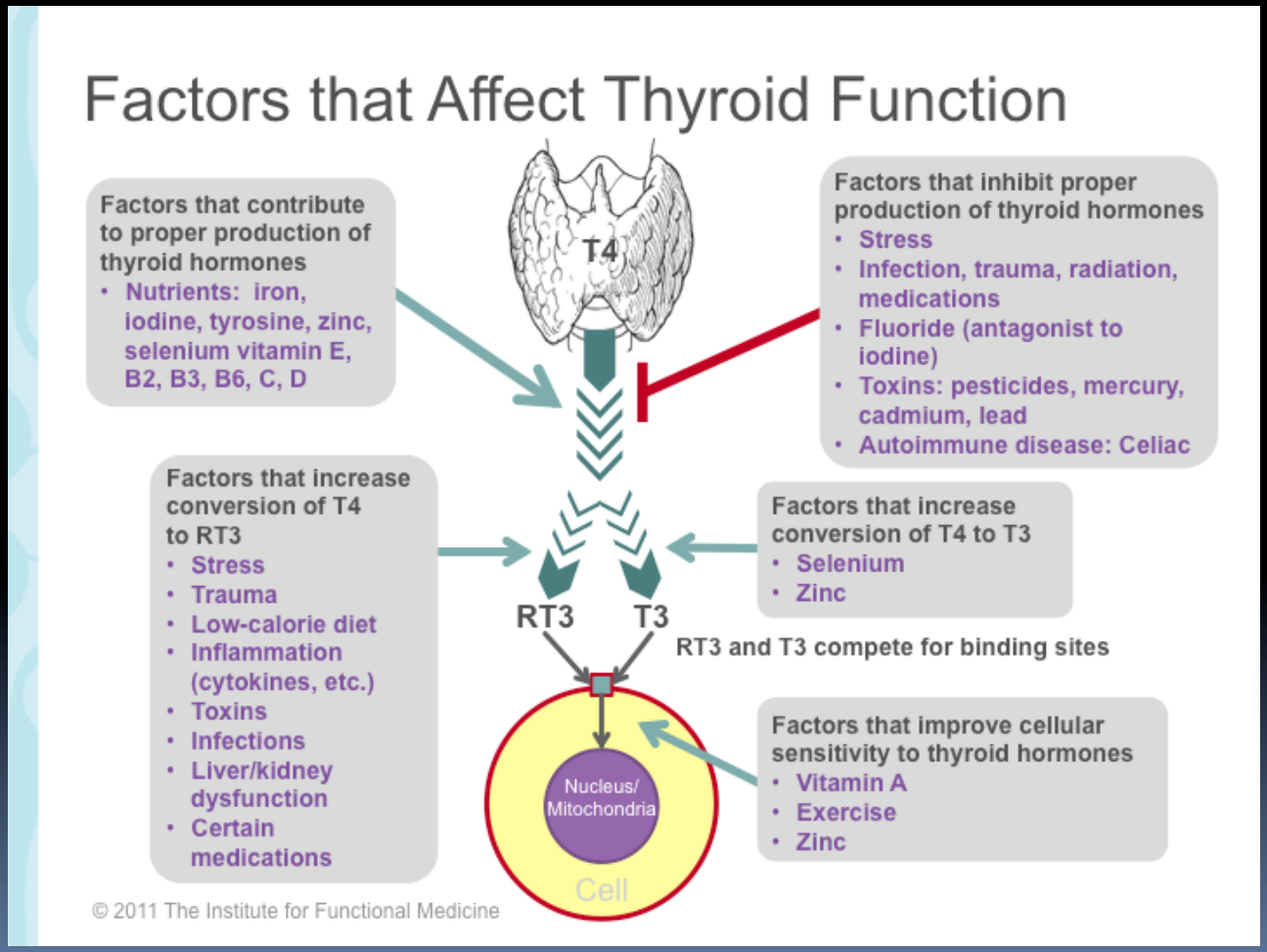
IODINE AND OTHER NUTRITIONAL TREATMENTS OF THYROID DYSFUNCTION

Factors That Affect Thyroid Function



Factors That Affect Thyroid Function

- See www.nahypothyroidism.org for references to previous graph

Zinc, copper, manganese, and selenium metabolism in thyroid disease

- Katsuaki Aihara, MD, et al This study was designed to evaluate trace metal metabolism in adults with thyroid diseases. Erythrocyte zinc values were significantlylower than normal in hyperthyroidism and higher in hypothyroidism. A significantlyhigher than normal urinary excretion of zinc was observed in hyperthyroidism. The mean concentrations of plasma and erythrocyte copper were significantlyabove normal in hyperthyroidism.

Zinc, copper, manganese, and selenium metabolism in thyroid disease

- Plasma selenium levels were significantlylower than normal in hyperthyroidism. No statistically significant difference was found in plasma zinc, erythrocyte manganese, or urine copper values between patients with thyroid diseases and healthy controls. The erythrocyte manganese content correlated well with thyroxine and triiodothyronine levels. Plasma prealbumin and retinol-binding protein correlated well with the erythrocyte zinc content but not with plasma zinc levels.

Zinc, copper, manganese, and selenium metabolism in thyroid disease

- There was no correlation between erythrocyte superoxide dismutase activity and erythrocyte copper or zinc concentrations. The results of this study suggest that the metabolism of zinc, copper, manganese, and selenium is abnormal in thyroid diseases. Am J C/in Nuir l984;40:26-35.

Vit B2 and Vit. B3

- Iodine needs Vit . B2 and Vit B3 for organification, to make Thyroid T4 and T3

- Evidence of Defective Cellular Oxidation and **Organification** of **Iodide** in a Female with Fibromyalgia and Chronic Fatigue. by Guy E. **Abraham**, MD and J. D. Flechas MD

Vitamin A and Thyroid function

- .

- Vitamin A caused a significant reduction in serum TSH concentrations in obese ($p = 0.004$) and nonobese ($p = 0.001$) groups. Serum T3 concentrations also increased in both obese and nonobese vitamin A-treated groups
- ($p < 0.001$). Serum T4 decreased in all 3 groups after treatment

- Am Coll Nutr. 2012 Aug;31(4):268-74.
- **The effect of vitamin A supplementation on thyroid function in premenopausal women.**
- Farhangi MA[1], Keshavarz SA, Eshraghian M, Ostadrahimi A, Saboor-Yaraghi AA.

Iodine for the body and thyroid

- When a tablet form of Lugol is ingested at a daily amount of 50 mg elemental iodine, whole body sufficiency is achieved in approximately 3 months and the estimated amount of iodine retained in the body is approximately 1.5 gm . This is the same amount of iodine retained in patients on amiodarone following 7 weeks at 300 mg/day containing 112.5 mg iodine. Clinical response to amiodarone is observed after the same period of time on amiodarone therapy. Some comparisons between amiodarone, an organic form of iodine, and inorganic iodine/ iodide are in order.

Iodine for the body and thyroid

- In the patients who ingested 300 mg amiodarone for 7 weeks, the total amount of iodine ingested is: 112.5 mg × 49 days = 5.5 gm. The patients retained 1.5 gm, that is 1.5 gm / 5.5 gm × 100 = 27% of the total dose. In patients of orthoiodosupplementation at 50 mg elemental iodine/day, sufficiency is achieved usually in 3 months and 1.5 gm of iodine is retained. The total amount of iodine ingested during 3 months at 50 mg/day = 50 mg / day × 90 days = 4.5 gm.

Body holds 1500mg iodine

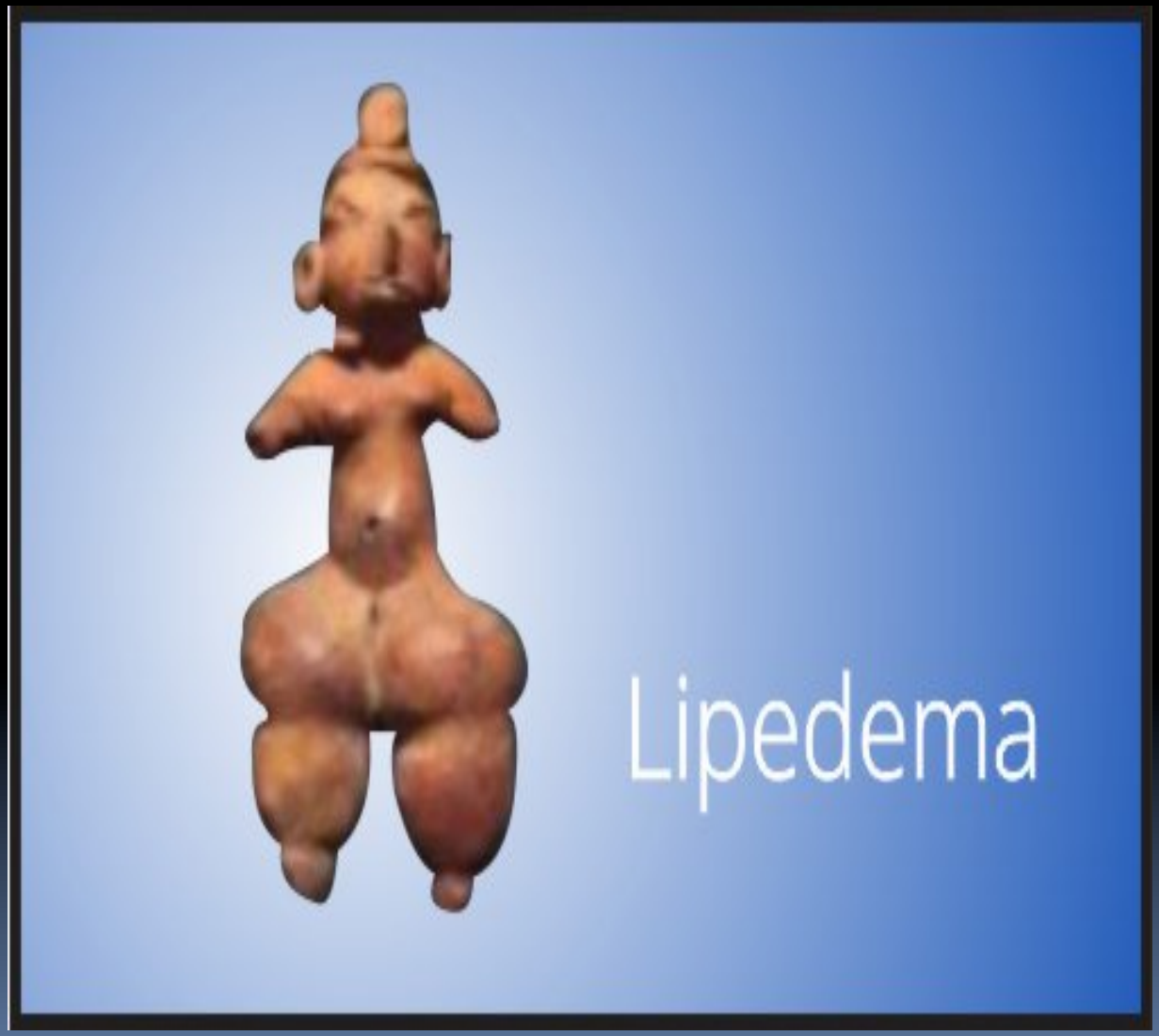
- The patients retained 1.5 gm, that is 1.5 gm / 4.5 gm × 100 = 33% of the total dose. Roughly 30% of the total dose of iodine is retained at iodine sufficiency in both cases, but the time required to achieve sufficiency decreases as the daily amount of iodine increases. Whether this inverse relationship between the daily dose of iodine and time required for whole body iodine sufficiency will persist with daily intake of iodine greater than 100 mg would require further investigation.

Body Distribution of Iodine

- Abraham, G.E.: *The concept of orthoiodosupplementation and its clinical implications*. The Original Internist, 11:29-38, 2004.
- 35 % iodine for the body fat
- 32% iodine for the body muscles
- 20% iodine for the skin
- 2% iodine for the thyroid

Lack of iodine in the thyroid

Lipedema



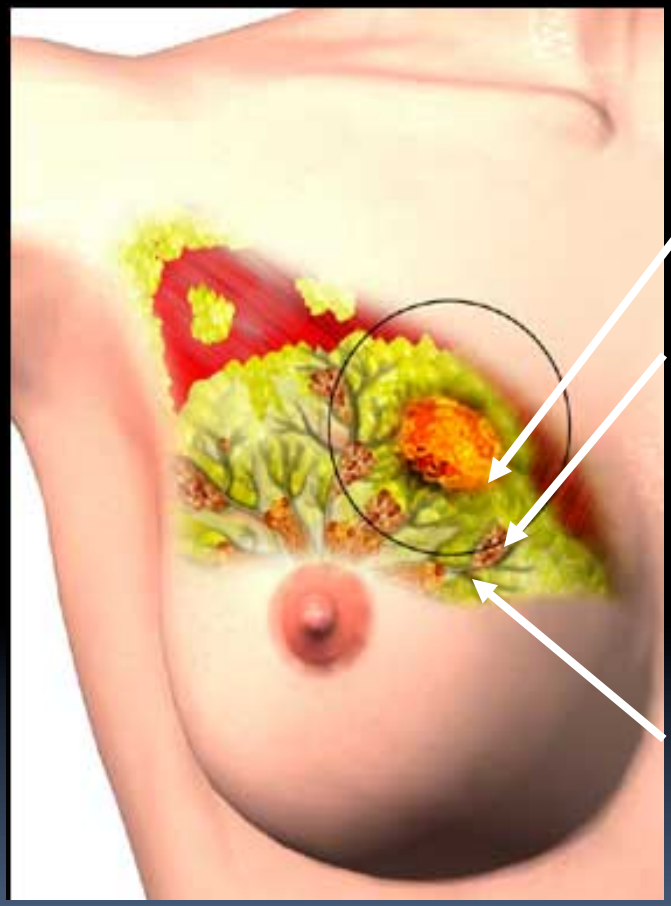
Lipedema

Lipedema

- Lipedema is a chronic disease of lipid metabolism marked by a bilateral and symmetrical swelling of the lower extremities caused by impairment of symmetrical fatty tissue distribution and storage combined with hyperplasia of individual fat cells. It can be diagnosed using clinical features rather than diagnostic tests. It almost exclusively affects women and 15% of patients have a family history of lipedema. Lipedema occurs primarily in the lower extremities and is rarely accompanied by edema of the upper extremities. Edema of the lower extremities is observed between the pelvic crest and the ankle, and occurs symmetrically on both sides
- Ann Rehabil Med. 2011 Dec; 35(6): 922–927.

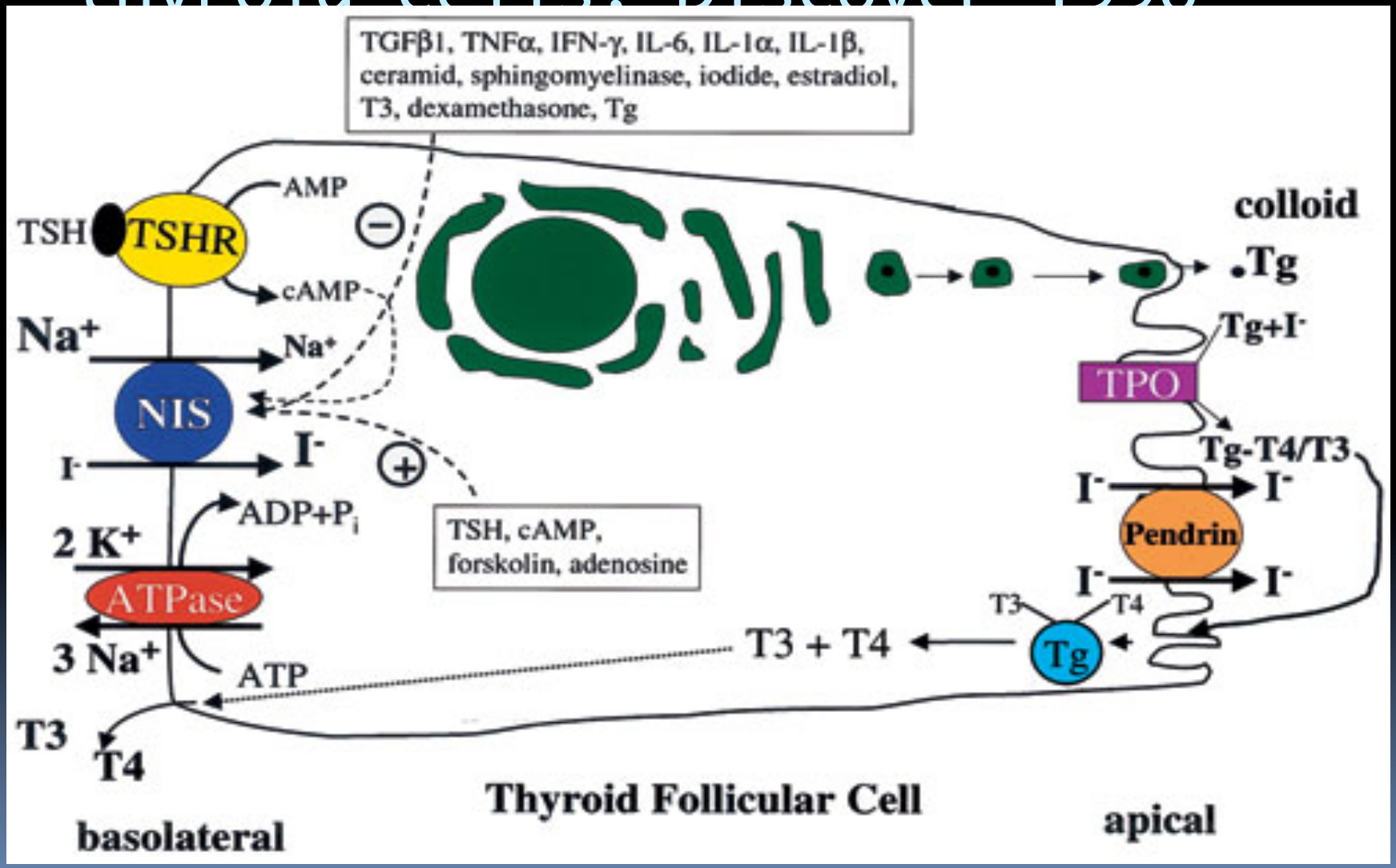
Fibrocystic Breast Disease

Elemental Iodine, I_2, more effective than Iodide, I^-



Ghent WR, Eskin BA, Low DA, Hill LP. Iodine Replacement in Fibrocystic Disease of the Breast. *Can J Surg* 1993;36:453-460.

Sodium Iodide symporter =NIS in thyroid cells: Discover 1996



NIS stimulation

- Hormones known to stimulate the NIS system: oxytocin, TSH, progesterone, retinoic acid, prolactin
- Inhibitors of NIS: estradiol (Furlanetto, Endocrinology vol 140,No 12, pg 5705, Aug 8, 2007)
- Hypothyroidism more common in women
- As is goiter 6 women to 1 man