

THYROID PARATHYROID

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“Forty percent of the American people—four of every ten children and adults—today are suffering needlessly and many are dying for lack of an ingredient vital for health. Is the ingredient unknown? No. Or unavailable? No. For years, medicine has recognized the role of the deficiency in some areas of health and disease and has had clues to its great importance in many other areas. But the knowledge too often has not been used—and still is not being used—because of the unreliability of laboratory tests that have failed to show the deficiency even when doctors could see its manifestations clearly enough in patients before them. And while laboratory tests have erred and have misled both doctors and patients, patients have suffered.”

Broda O. Barnes, M.D. Introduction to Hypothyroidism. *The Unsuspected Illness*. 1976.

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Why is thyroid hypofunction so prevalent?

- Lack of sufficient iodine
- Exposure to halogenated compounds
- Polychlorinated (PCB) and polybrominated (PBB) biphenyls
- Phthalate esters and metabolites
- Red Dyes #3
- Several pharmacologic agents-
- Many drugs have increased levels of fluoride

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Why is primary thyroid hypofunction more common with females?

- Iodine is needed for every cell in the body
- But ...Women have concentrated levels of iodine in breasts, ovary and thyroid, as we age we live in an anti-iodine world... drugs, water, bakery products

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Symptoms associated with thyroid hypofunction

- ▶ Dry, scaly or itching skin
- ▶ Reduced initiative, mental confusion, poor memory
- ▶ Morning headaches that wear off during the day
- ▶ Increase in weight,
- ▶ Sensitivity to cold (rule out anemia and atherosclerosis)
- ▶ Dry brittle hair, hair falls out easily
- ▶ Low axillary temperature (*Barnes Thyroid Test*)

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Symptoms associated with thyroid hypofunction

- ▶ Muscle cramps at rest
- ▶ Reduced immune function
- ▶ Edema, especially facial (myxedema)
- ▶ Constipation
- ▶ Loss of outside portion of eyebrows
- ▶ Best, ovarian or uterine cysts/fibroids
- ▶ Increase in serum lipids

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Symptoms associated with thyroid hypofunction

- ▶ Increase or decrease in blood pressure
- ▶ Tinnitus
- ▶ Impaired hearing
- ▶ Depression
- ▶ Myxedema
- ▶ Premature grey hair, red hair
- ▶ Type 1 diabetes
- ▶ Left-handedness
- ▶ B-12/folate anemia
- ▶ vitiligo

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Factors

3 major areas to consider with hypothyroid symptoms

- Thyroid itself
- Pituitary (hypofunction)
- Adrenal Hyper function

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Adrenal Involvement

- Thyroid Hypo-Function secondary to Adrenal Cortical Hyper-Function
- The adrenals are the gas and the body uses the pituitary and the thyroid as the brakes
- Therapeutic Goal:
Fix the adrenals and restart the pit-thyroid axis

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Adrenal

- Cortisol is necessary to reduce inflammation but excess cortisol blocks the conversion of T4 to T3.
- Excess cortisol will cause a thinning of the lining of the bowel contributing if not causing leaky gut.
- Leaky gut causes excess immune activation and probably a major role in the autoimmune condition Hashimoto's thyroiditis.
- Excess cortisol slows the conversion from T4 to T3, it can increase reverse T3 and affect gut flora and permeability

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Overcoming Thyroid Disorders

- ▶ **Hypothyroidism**
- ▶ **Poor T4 Converters and Thyroid Hormone Resistance**
- ▶ Fibromyalgia and Chronic Fatigue Syndrome
- ▶ Hyperthyroidism and Autoimmune Disorders
- ▶ Natural Hormones
- ▶ Diet
- ▶ Detoxification
- ▶ Coagulation Disorders

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Thyroid Hormone

- ▶ Affects every cell in body
- ▶ Cannot achieve optimum health without a properly functioning thyroid gland
- ▶ Hypothyroidism may be the most commonly missed diagnosis today
- ▶ **40%** of the population may have undiagnosed hypothyroidism.

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Triclosan and Thyroid

- ▶ Antibacterial agent (chlorinated, organic molecule similar to Bisphenol A) found in many household products
 - Toothpaste, mouthwash, soap, deodorants, shaving cream, cleaning supplies, kitchen utensils, trash bags, clothing, bedding, children's toys

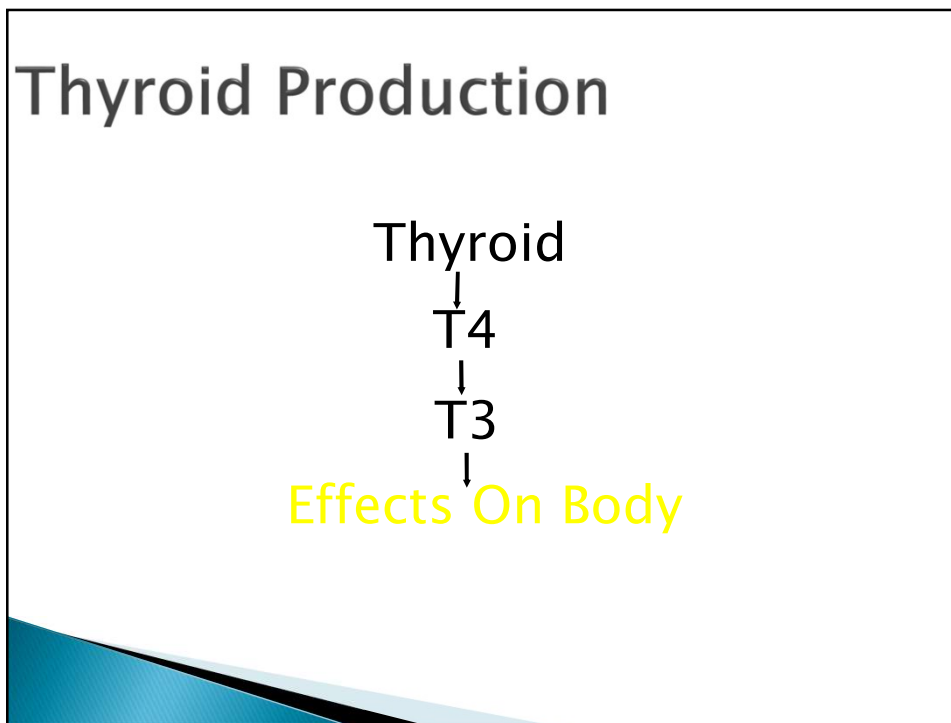
Toxic. Scienc.
2008. 10.1093

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Triclosan and Thyroid⁽²⁾

- ▶ Newborn rats fed varying amounts of triclosan for 31 days
- ▶ Results: Decrease in T4 concentrations with increasing concentrations
- ▶ Significant increases in liver weights with higher doses

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- ## Thyroid and Other Endocrine Imbalances
- ▶ Allergies
 - ▶ Arthritis
 - ▶ Cancer
 - ▶ Candida
 - ▶ Chronic Fatigue
 - ▶ Coronary Artery Disease
 - ▶ Cystic breasts
 - ▶ Cystic ovaries
 - ▶ Diabetes
 - ▶ Endometriosis
 - ▶ Gout
 - ▶ Hypertension
 - ▶ Hypotension
 - ▶ Infertility
 - ▶ Mental Disorders
 - ▶ Multiple Sclerosis
 - ▶ Obesity
 - ▶ P.M.S.
 - ▶ Psoriasis
-

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Colorado Thyroid Disease Prevalence Study

- ▶ 25,862 studied
- ▶ 10% of people studied were found to have undiagnosed abnormal thyroid function
- ▶ 13 million nationally may have undiagnosed abnormal thyroid function.

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Sunscreen Inhibits Thyroid Function

- ▶ Animal studies
- ▶ Rats treated with 4MBC and Benzophenone 2 (BP2) for five days found to have significantly increased TSH and lower T4.
 - Weight of thyroid glands increased
 - All above results prevented if there was adequate iodine present

“The work has shown that MBC and BP2 are potent disrupters of the pituitary–thyroid hormonal system in rats. If the same effect is discovered in humans, then we may have to rethink how we protect our children and those with existing thyroid problems or those in iodine–deficient areas from sun exposure.”

2006. Europ. Congress of Endocrin. Presentation.

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Hypothyroidism and Atherosclerosis

- ▶ 2550 Subjects
- ▶ Subclinical hypothyroidism associated with a 260% increase in the prevalence of heart disease.

J. Clin. Endocrinol. Metab. 2004;89:3365-3370

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Hypothyroidism and Atherosclerosis

- ▶ TSH receptor is expressed on coronary arteries and adipocytes
 - Elevated TSH may directly affect endothelial function of coronary arteries or fat cells
 - Induce ischemic heart disease in hypothyroidism.

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Hypothyroidism and Neurodevelopment

- ▶ **169 participants**
 - 53 children of mothers with hypothyroidism
 - Treated with L-Thyroxine shortly before or during pregnancy
 - TSH was only monitor used
 - 116 controls
- ▶ **Evaluated at 6, 12 and 18 months and a neuropsychological evaluation at 5 years**

FP News. 12.1.04

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Hypothyroidism and Neurodevelopment

- ▶ **Infancy**
 - Children of hypothyroid mothers found to have abnormal visual processing, deficits in attention and as well as sensorimotor skills and memory
 - At age 5, mean IQ 8 points lower in children of hypothyroid mothers
 - Also had lower scores on tests of working memory, as well as verbal and associative learning

FP News. 12.1.04

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IQ and Maternal Hypothyroidism

- ▶ Children of mothers with untreated hypothyroidism v. mothers without hypothyroidism
- ▶ IQ scores were 7 points lowered in children of untreated mothers
- ▶ 19% of untreated mothers had children with IQ <85 compared with 5% of others

N. Eng.J. of Med.
1999;341: 549-55

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Low T4 Levels Correlated With Neurodevelopment Problems

- ▶ 220 Children
- ▶ Neurodevelopmental Assessment at 10 months
- ▶ 22 Children of mothers having the lowest T4 at 12 weeks gestation scored significantly worse on the Psychomotor Developmental Index as compared with the others.

Clin. Endocrin. Oxf. 2003;59:282-8

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Thyroid Disease and Preterm Delivery

- ▶ Increased risk of spontaneous abortion
 - Women with hypothyroidism or thyroid antibodies
- ▶ 200% increase risk of preterm delivery in those women that had hypothyroidism

FP News. 1.15.05

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History

- | | |
|--------------------------|------------------------|
| ▶ Acne | ▶ Hypercholesterol |
| ▶ Arthritis | ▶ Hypertension |
| ▶ Arteriosclerosis | ▶ Infertility |
| ▶ Constipation | ▶ Menstrual disorders |
| ▶ Cold Extremities | ▶ Ovarian cysts |
| ▶ Depression | ▶ PMS |
| ▶ Eczema | ▶ Poor memory |
| ▶ Fatigue (A.M. Fatigue) | ▶ Psoriasis |
| ▶ Headaches | ▶ Recurrent infections |

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Hypertension and Hypothyroidism

- ▶ Dr. Barnes felt there was a link between high b.p. and hypothyroid
- ▶ Reviewed his records over 10 year period
- ▶ Of 95 patients who presented with hypertension and hypothyroidism, 95% (90) showed a significant decline in blood pressure after treatment for hypothyroidism

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Further Research on Hypertension/Hypothyroidism

- ▶ Dr. Barnes followed 1,500 patients who were treated for hypothyroidism
- ▶ Incidence of hypertension initially was 10% (the same as in the general population)
- ▶ Only 12 new cases of HTN developed over the next 20 years
 - Approximately 225–375 patients were expected to develop HTN as they aged

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Physical Exam Signs

- ▶ Anemia
- ▶ Dry skin
- ▶ Edema
- ▶ Goiter
- ▶ Hair loss
- ▶ Hypertension
- ▶ Hypotension
- ▶ Macroglossia
- ▶ Periorbital edema
- ▶ Poor eyebrow growth
- ▶ Puffy face
- ▶ Sluggish reflexes

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Lab Work

- ▶ Blood Tests
- ▶ TSH, T4 total, T3 total, Reverse T3, T3 Uptake;
- ▶ Free Thyroxine Index, Triiodothyronine, Free,
- ▶ Thyroid Peroxidase (TPO) Ab; Antithyroglobulin Ab
- ▶ 24 Hour urine testing
- ▶ Serum Ferritin
- ▶ Serum B12 (>450pc/ml)
 - Clinical Pearls, March 1997, Vol. 7, No. 3.

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HASHIMOTO'S THYROIDITIS

- ▶ Irrespective of the sTSH, T-3, T-4 and/or free thyroxine index (FTI/T-7), if the anti-TPO and/or anti-thyroglobulin ab is increased, Hashimoto's is present. Hashimoto's can be present with normal sTSH, T-3 and T-4, with thyroid hypofunction and with thyroid hyperfunction; however, it is more common with thyroid hypofunction.

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HASHIMOTO'S THYROIDITIS

- ▶ Based on clinical investigation by Dr. Steve Nelson, Dr. Jack Hintz and Dr. Harry O. Eidenier, Jr., the following should be ruled out with Hashimoto's
 - With thyroid hypofunction, rule out metal body burdens, reduced gut immunity and/or virus as locus to the thyroiditis.
 - With thyroid hyperfunction, rule out petrochemical poisoning, nanobacterial infection and/or food/environmental allergy as locus to the thyroiditis.

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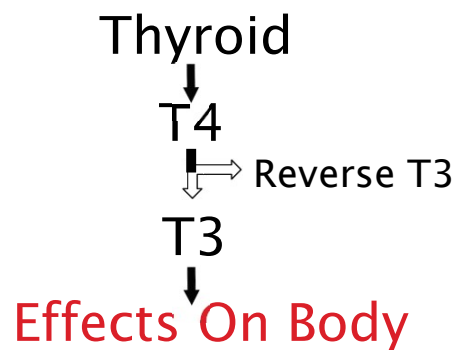
TSH and Thyroid Cancer

- ▶ 50 euthyroid subjects undergoing thyroidectomy
- ▶ 1 / 3 found to have thyroid cancer
 - **Higher mean TSH** (1 / 5 mIU/L) as compared to those with benign disease (1.01 mIU/ml)
 - **8.7x increase risk of thyroid cancer** in subjects with TSH in upper three quartiles of TSH values (1.2–3.7) compared to the lowest quartile (0.34–1.1)
 - **T3 levels lowered** in those diagnosed with thyroid cancer (113 ng/dl) as compared to those with benign disease (130 ng/dl).

Thyroid. Vol. 18. N. 9. 2008. 943-952

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Reverse T3



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TSH Is A Poor Test

“The biological effects of thyroid hormones at the peripheral tissues– and not TSH concentrations– reflect the clinical severity of hypothyroidism. A judicious initiation of (thyroid hormone) treatment should be guided by clinical and metabolic presentation and thyroid hormone concentrations and not by serum TSH concentrations.”

BMJ 2003;326:311–312

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TSH

“TSH above 2.0mU/L is a risk factor for future development of hypothyroidism, especially when TPO is detected. This is true even in the absence of thyroid antibodies. Ultimately, the diagnosis and efficacy of treating subclinical hypothyroidism should not be based on the TSH reference range alone, but should integrate the degree of TSH elevation with patient-specific risk factors and the concentration of TPO antibodies.”

FP NEWS. 6.15.07

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Fetal Death, Impaired Development and Neonatal Hypothyroidism

- ▶ 9,403 Women
- ▶ TSH measured during second trimester
- ▶ 2.2% had TSH >6mU/L
- ▶ Rate of fetal death was over 4x higher in women with elevated TSH

J. Med. Screen. 2000;7:127-30

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TSH and Weight

Framingham study. 2407 participants followed for 3.5 years.

- ▶ Women:
 - Weight increased by 2.3kg for every 1-unit increment in TSH concentration
- ▶ Men:
 - Weight increased by 1.1 kg for every 1-unit increment in TSH concentration

“Change in serum TSH concentrations over time (within reference range) was strongly and linearly associated with weight gain.”

Arch. Intern. Med. Vol. 168 (No. 6), 3.24.08

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TSH and ADHD

- ▶ 4 year old children
- ▶ TSH levels and neurobehavioral changes
- ▶ High normal TSH levels (>75th Percentile) negatively associated with memory and verbal and quantitative skills
 - Positively associated with hyperactivity/impulsivity symptoms
 - TSH >2.2 presented lower neurodevelopmental scores as well as higher risk of attention and impulsivity/hyperactivity symptoms.

Clin. Endocrin. Oxf 2007, Jun;66(6): 890-8

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Thyroid Function and Alzheimer's Disease

- ▶ 209 Participants
- ▶ 12.7 years follow-up
- ▶ Women in the lowest (<1.0mIU/L) and highest (>2.1 mIU/L) of serum TSH concentration had increased risk of Alzheimer's disease compared to those in middle tertile (0.5–5.0mIU/L)
- ▶ Lowest tertile: 239% increase
- ▶ Highest tertile: 215% increase

Arch. Int. Med. Vol.
168, No. 14, 7.28.08

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How To Check The Basal Body Temperature

- ▶ Shake thermometer down at night
- ▶ In A.M., take axillary temperature before arising for 10 minutes
- ▶ Menstruating women should take their temperatures on days 2–4 of cycle
- ▶ Normal axillary temperature is 97.8–98.2

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Diagnosing Hypothyroidism

- ▶ History
- ▶ Physical exam
- ▶ Basal Body Temperatures
- ▶ Blood Tests.

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Comparing Thyroid Medications


Desiccated Thyroid <ul style="list-style-type: none">◦ T1◦ T2◦ T3◦ T4◦ Calcitonin◦ Diuretic Effect◦ Selenium	Levothyroxine Sodium <ul style="list-style-type: none">◦ T4
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Other Thyroid Rx. Choices

- ▶ Nature-Throid and Westthroid
 - Corn-free, desiccated thyroid hormone
- ▶ Compounded Desiccated Thyroid Hormone
 - No fillers
 - Adjust dosage
- ▶ Compounded T3
 - Slow release
 - No fillers



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Synthroid and Levothroid Are Inadequate Drugs According to FDA

"...no currently marketed orally administered levothyroxine sodium product has been shown to demonstrate consistent potency and stability and thus, no currently marketed orally administered levothyroxine sodium product is generally recognized as safe and effective."

Federal Register: August 14, 1997 (Vol. 62, Num 157)

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Desiccated Thyroid Treatment

- ▶ **Adults: Start at ½ grain**
- ▶ **Elderly, heart disease history: Start at ¼ grain and go slowly**
- ▶ **Monitor basal temperatures, lab work, physical exam signs and symptoms.**

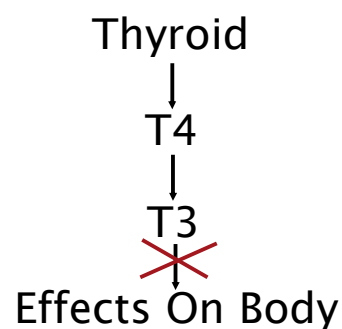
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Overcoming Thyroid Disorders

- ▶ Hypothyroidism
- ▶ **Thyroid Hormone Resistance and Poor T4 Converters**
- ▶ Fibromyalgia and
- ▶ Hyperthyroidism and Autoimmune Disorders
- ▶ Natural Hormones
- ▶ Diet
- ▶ Detoxification
- ▶ Coagulation Disorders

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Thyroid Hormone Resistance



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Thyroid Hormone Resistance

- ▶ Target tissues of body have reduced responsiveness to thyroid hormone
 - First described in 1967
- ▶ Can occur with adequate production of thyroid hormone
- ▶ Analogous to adult onset diabetes

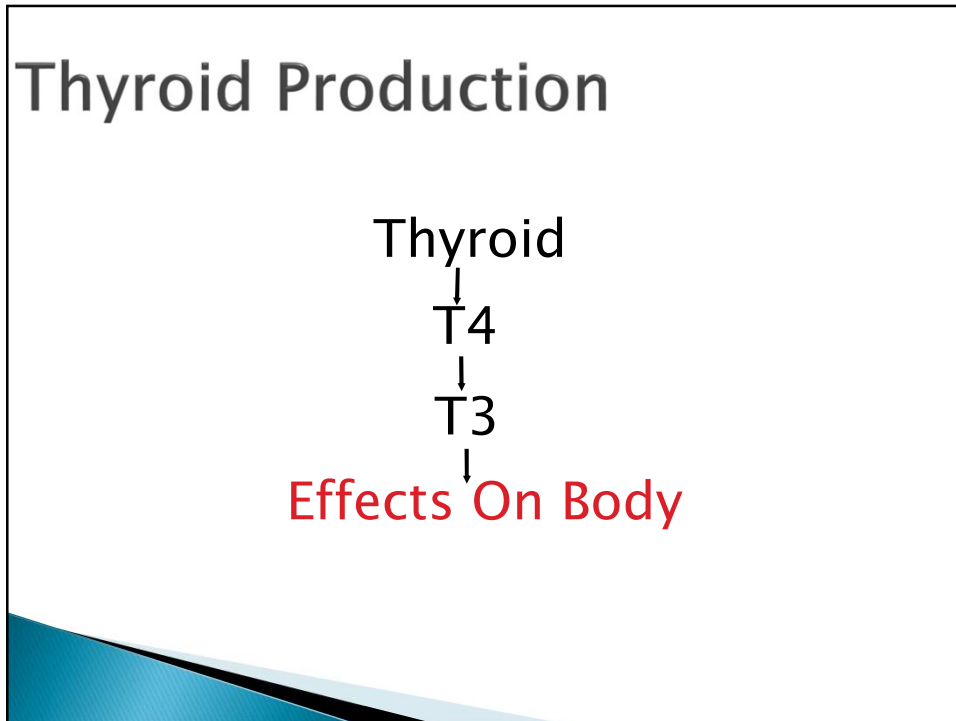
Laboratory tests will be inaccurate!

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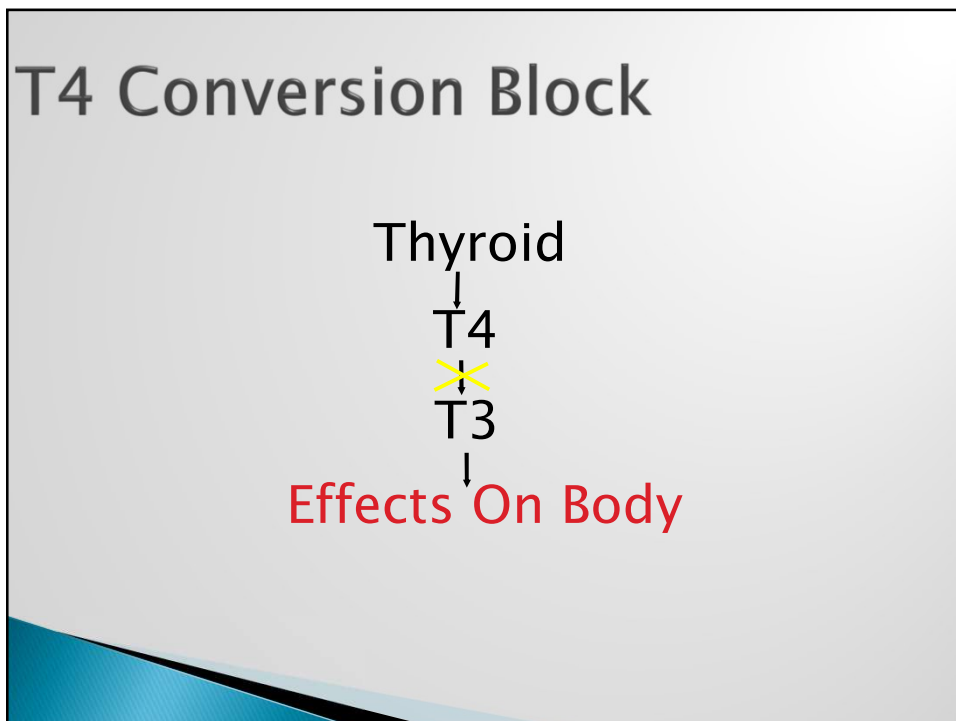
Thyroid Hormone Resistance

- ▶ Genetic anomalies of thyroid hormone receptors
- ▶ Autoimmune, oxidative, or toxic damage to thyroid-hormone receptors
- ▶ Competitive binding to thyroid-hormone receptors by pollutants, food additives, etc.

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Lowered T3 Levels in Elderly Associated With:

- ▶ Lowered attention
- ▶ Depression
- ▶ Increased mortality
- ▶ Lowered ability to perform activities of daily living.

JAMA. 12.1.04;Vol. 292, No. 2

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Thyroid Hormone Levels in Cardiac Tissue and Iodine Deficiency

- ▶ Iodine deficiency in rats resulted in subclinical hypothyroid picture
 - Elevated TSH with normal T4 and T3

Despite normal T3 levels, cardiac tissue was found to be deficient in T3. T4 therapy was unable to correct the cardiac deficiency, in the presence of iodine deficiency.

Acta. Endocrin. (Copen). 120:490-98.1989
J. Clin. Invest. 96:2828-38, 1995

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T4 to T3 Inhibitors

<p><u>Nutrient Deficiencies</u></p> <ul style="list-style-type: none"> ▶ Iodine ▶ Iron ▶ Selenium ▶ Zinc ▶ Vitamin A ▶ Vitamin B2 ▶ Vitamin B3 ▶ Vitamin B6 ▶ Vitamin B12 	<p><u>Medications</u></p> <ul style="list-style-type: none"> ▶ Beta Blockers ▶ Birth Control Pills ▶ Estrogen ▶ Iodinated Contrast Agents ▶ Lithium ▶ Phenytoin ▶ SSRI ▶ Theophylline
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T4 to T3 Inhibitors ⁽²⁾

<ul style="list-style-type: none"> ▶ Aging ▶ Alcohol ▶ Alpha-Lipoic Acid ▶ Chemotherapy ▶ Cigarette Smoking ▶ Cruciferous Vegetables ▶ Diabetes ▶ Fasting ▶ Fluoride 	<ul style="list-style-type: none"> ▶ Growth Hormone Deficiency ▶ Hemochromatosis ▶ Lead ▶ Low Adrenal State ▶ Mercury ▶ Pesticides ▶ Soy ▶ Stress ▶ Surgery ▶ Radiation
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T4 to T3 Inhibitors

<u>Nutrient Deficiencies</u>	<u>Medications</u>
<ul style="list-style-type: none">▶ Iodine▶ Iron▶ Selenium▶ Zinc▶ Vitamin A▶ Vitamin B2▶ Vitamin B6▶ Vitamin B12	<ul style="list-style-type: none">▶ Beta Blockers▶ Birth Control Pills▶ Estrogen▶ Iodinated Contrast Agents▶ Lithium▶ Phenytoin▶ Theophylline

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Solution

- ▶ Proper diagnostics
- ▶ Balancing body Chemistry
- ▶ Removal of toxins
- ▶ Addressing deficiencies
- ▶ Monitoring, adjusting
- ▶ Lifestyle changes
- ▶ Dietary changes

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PRIMARY MILD HYPOTHYROIDISM

- ▶ Check first the “raw material”
- ▶ Iodizyme HP
- ▶ Tyrosine
- ▶ Selenomethionine
- ▶ Balanced B8
- ▶ Rubidium

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PRIMARY CLINICAL HYPOTHYROIDISM

- ▶ Check first the “raw material”
- ▶ Iodizyme HP
- ▶ Tyrosine
- ▶ Selenomethionine
- ▶ Balanced B8
- ▶ Rubidium

- ▶ ADD
- ▶ GTA or GTA FORTE II

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HYPOTHYROIDISM WITH HIGH ANTIBODIES

- ▶ Check first the “raw material”
- ▶ Selenomethionine
- ▶ Balanced B8
- ▶ IAG

- ▶ WAIT 1-2 MONTHS, THEN ADD:
- ▶ IODIZYME HP

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HYPERTHYROIDISM

- ▶ Heavy metal detox
- ▶ Parasite, fungal
- ▶ Dental work... implants, root canals
- ▶ Adrenal hypofunction
- ▶ IAG
- ▶ PORPHYRAZYME
- ▶ CARBAMIDE PLUS
- ▶ ADHS

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