



## Overcoming Hypothyroidism

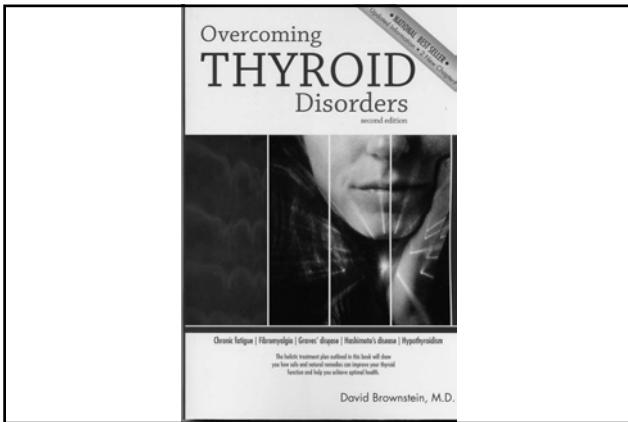
David Brownstein, MD

## Welcome to ZRT Laboratory's Webinar



### David Brownstein, MD

Dr. Brownstein is a Board-Certified family physician and is one of the foremost practitioners of holistic medicine. He is the Medical Director of the Center for Holistic Medicine in West Bloomfield, MI. Dr. Brownstein has lectured internationally to physicians and others about his success in using natural hormones and nutritional therapies in his practice. Dr. Brownstein has authored nine books, including *Overcoming Thyroid Disorders*, *The Miracle of Natural Hormones*, *Overcoming Arthritis*, and many more!



"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."

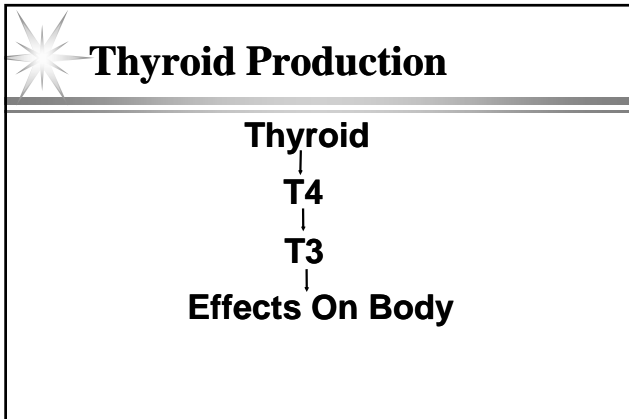
Broda O. Barnes, M.D. Introduction to *Hypothyroidism, The Unsuspected Illness*. 1976.

## 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

## 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.




- ## 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

- ## 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.
- Archives of Int. Med. Vol. 160, No. 4, 2/28/2000

- ## 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.

- ## 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


- ## 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.



## 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



## 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



## 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



## 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



## 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



## History

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

## 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

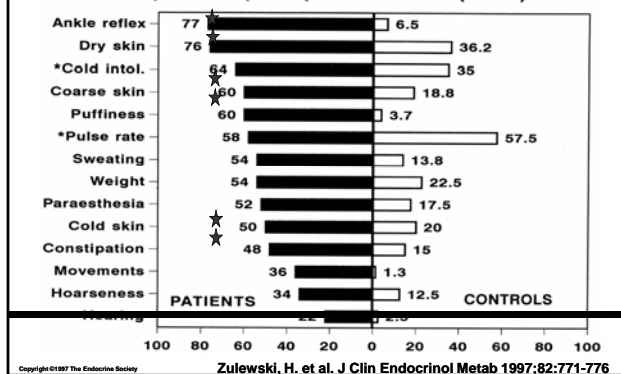
## Further Research on Hypertension/Hypothyroidism

- 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

## Physical Exam Signs

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

Frequency of hypothyroid symptoms and signs (in %) in patients (n=50) and controls (n=80)



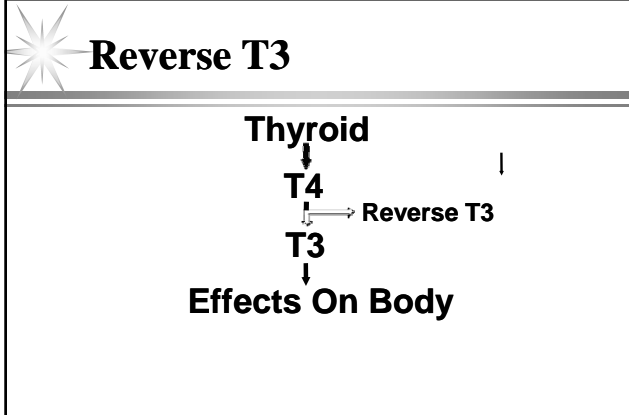
## Lab Work

- Blood Tests
  - TSH, T4 total, T3 total, Reverse T3
- 24 Hour urine testing
- Serum Ferritin
- Serum B12 (>450pc/ml)
  - Clinical Pearls, March 1997, Vol. 7, No. 3.

## TSH and Thyroid Cancer

- 50 euthyroid subjects undergoing thyroidectomy
- 1/3 found to have thyroid cancer
  - Higher mean TSH (1/5mIU/L) as compared to those with benign disease (1.01mIU/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 (113ng/dl) as compared to those with benign disease (130ng/dl).

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



## 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

## 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

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

## 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 1.1kg 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


- ## TSH and ADHD
- 4 year old children
  - TSH levels and neurobehavioral changes
  - High normal TSH levels (>75<sup>th</sup> 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



## 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



## TSH and Heart Attacks

- 17,311 women and 8002 men
  - Without thyroid or cardiovascular disease
  - ALL participants had normal TSH (0.5-3.5)
  - Median follow-up of 8.3 years
  - Women stratified into three groups:
    - TSH 0.5-1.4mIU/L
    - TSH 1.14-2.52mIU/L
    - TSH 2.5-3.5mIU/L

Arch. Of Int. Med. Vol. 168. N. 8, 4.28.08




## TSH and Heart Attacks

- In women, significant difference between women in the lower range and the mid and upper ranges.
- Mid range: (TSH1.14-2.52): 41% increase risk of cardiovascular death
- Upper range: (TSH 2.5-3.5): 69% increase risk of cardiovascular death


"Thyrotropin levels within the reference range were positively and linearly associated with CHD mortality in women. The results indicate that relatively low but clinically normal thyroid function may increase the risk of fatal CHD."

Arch. Of Int. Med. Vol. 168. N. 8, 4.28.08




## 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



## Diagnosing Hypothyroidism

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



## Comparing Thyroid Medications

<b>Desiccated Thyroid</b>	<b>Levothyroxine Sodium</b>
<ul style="list-style-type: none"> <li>• T1</li> <li>• T2</li> <li>• T3</li> <li>• T4</li> <li>• Calcitonin</li> <li>• Diuretic Effect</li> <li>• Selenium</li> </ul>	<ul style="list-style-type: none"> <li>• T4</li> </ul>



## 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



## 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)



## 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.**

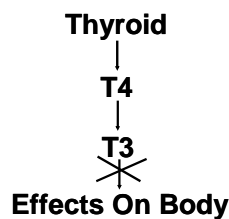


## Overcoming Thyroid Disorders

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



## Thyroid Hormone Resistance



## 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!

## 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.

## T4 Conversion Block

Thyroid  
 ↓  
 T4  
 ✕  
 T3  
 ↓  
 Effects On Body

## 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. 21

## 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

## T4 to T3 Inhibitors

<u>Nutrient Deficiencies</u>	<u>Medications</u>
• Iodine	• Beta Blockers
• Iron	• Birth Control Pills
• Selenium	• Estrogen
• Zinc	• Iodinated Contrast Agents
• Vitamin A	• Lithium
• Vitamin B2	• Phenytoin
• Vitamin B3	• SSRI
• Vitamin B6	• Theophylline
• Vitamin B12	

## T4 to T3 Inhibitors (2)

• Aging	• Growth Hormone Deficiency
• Alcohol	• Hemochromatosis
• Alpha-Lipoic Acid	• Lead
• Chemotherapy	• Low Adrenal State
• Cigarette Smoking	• Mercury
• Cruciferous Vegetables	• Pesticides
• Diabetes	• Soy
• Fasting	• Stress
• Fluoride	• Surgery
	• Radiation



## **T4 to T3 Inhibitors**

### Nutrient Deficiencies

- Iodine
- Iron
- Selenium
- Zinc
- Vitamin A
- Vitamin B2
- Vitamin B6
- Vitamin B12

### Medications

- Beta Blockers
- Birth Control Pills
- Estrogen
- Iodinated Contrast Agents
- Lithium
- Phenytoin
- Theophylline