Iodine for Thyroid & Health
A Holistic Approach

David Brownstein, MD

May 6th, 2011

This evening's presentation at 7:30 pm, Central Time.
Please stay tuned

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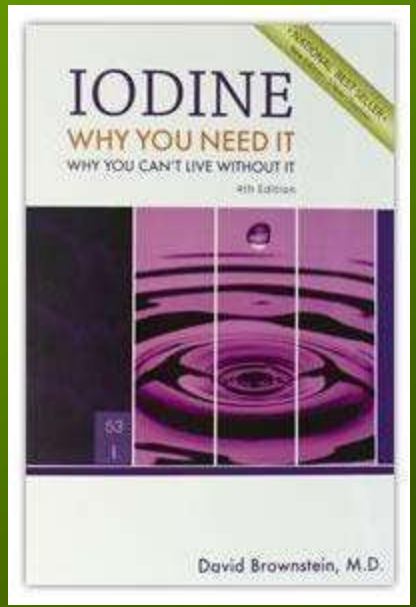
About Dr. Brownstein

David Brownstein, MD, 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:

- Iodine: Why You Need It, Why You Can't Live Without It (2nd Ed.)
- Overcoming Thyroid Disorders (2nd Ed.)
- The Miracle of Natural Hormones (3rd Ed.)
- Drugs That Don't Work and Natural Therapies That Do
- Overcoming Arthritis
- Salt: Your Way to Health
- The Guide to Healthy Eating
- The Guide to a Gluten-Free Diet
- The Guide to a Dairy-Free Diet
- The Soy Deception



Overcoming Thyroid Disorders

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248.851.1600
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"The superior physician helps before the early budding of the disease...
The inferior physician begins to help when the disease has already developed."

Yellow Emperor s Classic of Internal Medicine
Huang Ti Nei Ching Su Wen
2697-2597 BC

“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.**


I’m telling you McFly, it more likely 60%!

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

Overcoming Thyroid Disorders

- **Hypothyroidism**
- **Poor T4 Converters and Thyroid Hormone Resistance**
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- **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
- **60%** of the population may have undiagnosed hypothyroidism.

Triclosan and Thyroid

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

Toxic. Scienc. 2008. 10.1093

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

Toxic. Scienc. 2008. 10.1093

Triclosan and Thyroid

- Rats given varying amounts of triclosan
- Serum thyroid hormone concentrations suppressed by triclosan.

Toxicol. Sciences. 117(1), 45-53. 2010

Triclosan and Rat Thyroid

- Pregnant rats exposed to triclosan
- Serum T4 reduced 31% in dams

Env. Toxic. And Chem. Vol. 29, No. 12. p. 2840-44

Thyroid Production

Thyroid

↓

T4

↓

T3

↓

Effects On Body

Thyroid and Other Endocrine Imbalances

- Allergies
- Anxiety
- Arthritis
- Cancer
- Candida
- Chronic Fatigue
- Coronary Artery Disease
- Cystic breasts
- Cystic ovaries
- Depression
- 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. Presenta

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

Subclinical Hypothyroidism and Ischemic Heart Disease

- 97 subjects with SCH (TSH 6.0-15mIU/L) v. euthyroid controls (2279)
  - 20 years of follow-up
- SCH associated with a 76% increase in IHD
- SCH associated with a 79% increase in mortality from IHD

When subclinical hypothyroid patients treated with thyroid hormone, there was no difference seen.

J. Clin. Endocrin. And Metab. April, 2010, 95(4):1734-40

Subclinical Hypothyroidism Tied to Cardiac Risks

BY MICHELE G. SULLIVAN

FROM JAMA

Subclinical hypothyroidism appears to increase the risk of coronary heart events by up to 89% and coronary heart death by up to 58%, adding more fuel to the debate about whether to treat low-level thyroid dysfunction.

But although the findings clarify the level of heart disease risk associated with mild subclinical hypothyroidism, only a treatment trial can fully answer the question of who – and when – to treat, said Dr. Nicolas Rodondi, the study's primary investigator.

"Now that we have clearly shown the increased risk associated with higher TSH levels and what we should test for, we need to know if we can decrease this risk by treating," he said in an interview. "Unfortunately, our paper does not totally

VITALS

Major Finding: Subclinical hypothyroidism with thyroid-stimulating hormone levels of 10 mIU/L or higher is associated with a significantly increased risk of coronary heart disease events and deaths.

Data Source: A meta-analysis of 11 prospective studies comprising more than 55,000 patients and 543,000 person-years of follow-up.

Disclosures: The study was sponsored by the National Institutes of Health. None of the authors reported any financial conflicts.

subclinical hypothyroidism, the group defined the condition as described in the Cardiovascular Health Study: a serum thyroid-stimulating hormone (TSH) of 4.5 mIU/L to 19.9 mIU/L with a normal free thyroxine (T4) level. Euthyroidism was defined as a TSH of 0.5 mIU/L to 4.49 mIU/L. Coronary heart disease events, coronary heart disease death, and overall mortality were the primary end points.

Of the 55,287 adults included in the meta-analysis, 3,450 (6%) had subclinical hypothyroidism; the rest were euthyroid. The rate of thyroid hormone replacement therapy at baseline varied among the studies, from 0% to 8%. In some studies, up to 12% of patients were taking thyroid hormone during the follow-up period. All 11 of the papers reported total and coronary heart disease mortality, while 7 also reported coronary heart disease events.

During the follow-up periods, which ranged from 2.5 to 20 years, 9,664 patients died; 2,168 of those from coronary heart disease (CHD). There were also 4,470 CHD events in the studies that examined this end point.

In an overall analysis of subclinical hypothyroidism vs. euthyroidism, adjusted for age and gender, there were pat-

COURTESY DR. NICOLAS RODONDI

Dr. Nicolas Rodondi: TSH levels of 10-19.9 mIU/L indicated the greatest risk.

events was significantly higher than in euthyroid patients (hazard ratio 1.89). In this group of 235 patients, there were 70 events, for a rate of 38/1,000 person-years, compared with 20/1,000 person-years in euthyroid patients.

The highest TSH group also had a significantly increased risk of death from CHD (HR 1.58). There were 28 such deaths in that group of 333 patients, for an overall rate of 8/1,000 person-years, compared with 5 in the euthyroid patients. Although younger patients with elevated TSH appeared to have slightly higher risks, there were no significant overall associations with age.

The findings were essentially unchanged in a variety of sensitivity analyses that took into account such factors as excluding patients taking thyroid medication, adjustment for cardiovascular risk factors and drugs to manage those risks, and studies that included only cardiac patients.

The mechanism by which subclinical hypothyroidism could increase the risk of heart disease is not fully understood, Dr. Rodondi and his colleagues wrote. "Increased systemic vascular resistance, arterial stiffness, altered endothelial function, increased atherosclerosis, and altered coagulability have been reported to be associated with subclinical hypothyroidism and may accelerate CHD," they noted. "The fact that adjustments for traditional cardiovascular risk factors did not alter risks could favor this hypothesis."

Now that firmer data are established, the questions of screening and treatment remain to be answered, Dr. Rodondi said in the interview. Population-based screening is not warranted, but screening might someday be useful in specific groups – older patients, for example.

"Subclinical hypothyroidism is a very common finding, especially among older adults, with a prevalence of about 5% at age 50 and 10% by age 65. But if we do screen these participants, and find abnormal levels, what do we do? At this point, it is still unclear, particularly for minimal TSH elevations." ■

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 IBS

- Small intestinal bacterial overgrowth diagnosed by lactulose breath test found in 54% of hypothyroid patients
  - Occurred even when treated patients were euthyroid.

J. Clin. Endocrinol. Metab. 2007;92:4180-4

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

History

- Acne
- Arthritis
- Arteriosclerosis
- Constipation
- Cold Extremities
- Decreased hearing
- Depression
- Eczema
- Fatigue (A.M. Fatigue)
- Headaches
- Hypercholesterol
- Hypertension
- Hypotension
- Infertility
- Mental Impairment
- Menstrual disorders
- Ovarian cysts
- Parasthesias
- PMS
- Poor memory
- Psoriasis
- Recurrent infections
- Slowed movements
- Voice hoarseness

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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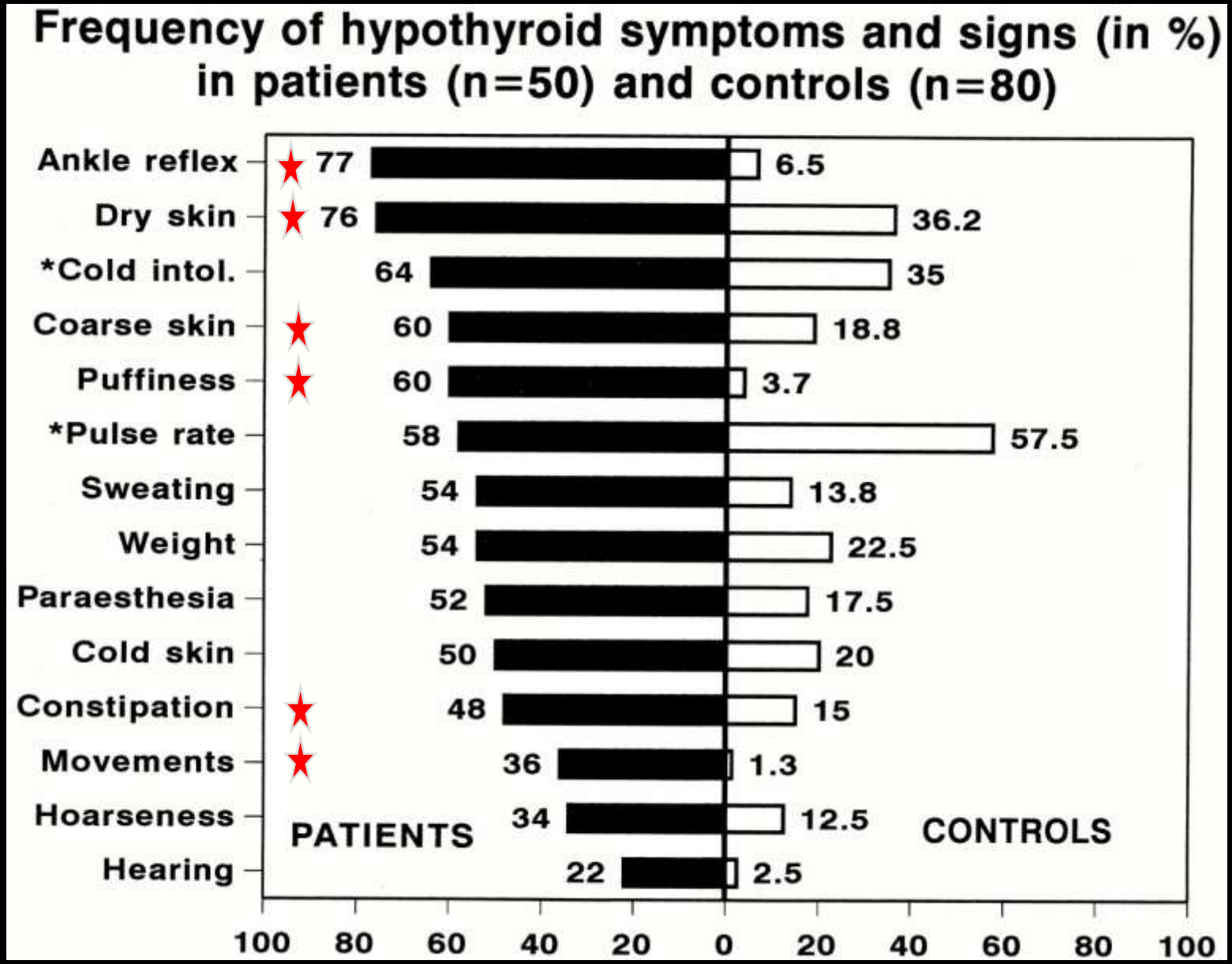
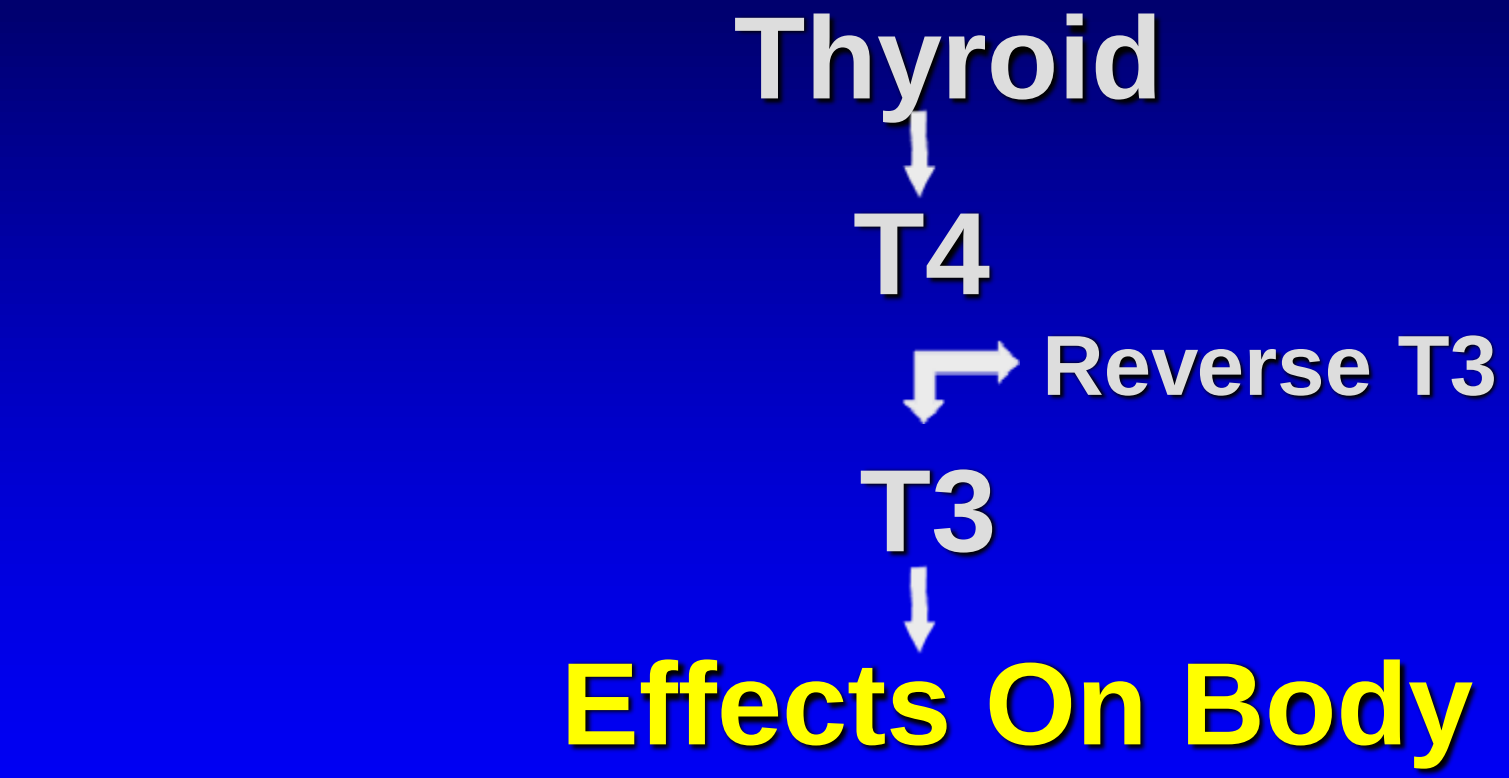


Zulewski, H. et al. J Clin Endocrinol Metab 1997;82:771-776

Lab Work

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

Reverse T3



Reverse T3

- Liver detox
- T3 preparations

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

High-Normal TSH Linked to CV Risks in Teens

BY BRUCE JANCIN

FROM THE ANNUAL SCIENTIFIC SESSIONS OF THE AMERICAN HEART ASSOCIATION

CHICAGO – Thyroid-stimulating hormone levels in the upper range of normal are associated with an increased prevalence of cardiovascular risk factors in adolescents, according to a large cross-sectional study.

This finding from the 2007-2008 National Health and Nutrition Examination Survey suggests that thyroid hormone's influence upon lipid metabolism and glucose homeostasis in teens extends into the euthyroid range and is independent of obesity, Dr. Edmond P. Wickham III said.

He reported on the relationship between TSH level and cardiovascular risk factors in 883 euthyroid adolescent survey participants with a TSH in the normal range of 0.35-5.6 microIU/mL and no history of thyroid disease, diabetes, or antihypertensive therapy. The mean TSH in the 198 obese study participants was 1.89 microIU/mL, significantly higher than the 1.59 microIU/mL in the 154 overweight subjects and the 1.58 microIU/mL in normal-weight individuals.

In univariate analyses, TSH showed a strong linear relationship with body mass index, systolic blood pressure, fasting blood glucose, and total cholesterol, according to Dr. Wickham of Virginia Commonwealth University, Richmond.

In a multivariate analysis controlling for gender and race, the relationship between TSH and BMI remained significant. The association between TSH and total cholesterol and fasting blood glucose remained significant after controlling for BMI as well as race and gender.

Dr. Wickham declared having no relevant financial interests. ■

High-Normal TSH and CVD in Teens

- 883 Euthyroid adolescent subjects
  - Normal TSH 0.35-5.6mIU/ml
  - No history of thyroid disease
- Mean TSH in obese subjects compared to overweight and normal weight subjects
  - Normal TSH 0.35-5.6mIU/ml
  - No history of thyroid disease

NHANES 2007-2008
FP News. 2.15.2011

High-Normal TSH and CVD in Teens

	Obese	Overweight	Normal Weight
TSH (mIU/ml)	**1.89**	**1.59**	**1.58**

Significant Difference

NHANES 2007-2008
FP News. 2.15.2011

Prior to TSH Test

- Standard thyroxine replacement doses ranged from 200-300µg/day
- 1971: First report on measurement of TSH test in patients on thyroxine replacement
  - Reported the serum TSH restored to 'normal' with 100-150 µg/day of thyroxine

This was a 50% reduction in dosage!!

N. Eng. J. of Med. 1971:285:529-33

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 (>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

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 (0.5-2.1mIU/L)
- Lowest tertile: **239% increase**
- Highest tertile: **215% increase.**

Arch. Int. Med. Vol. 168, No. 14, 7.2

How To Check The Basal Body Temperature

- Shake thermometer down at night or use a basal thermometer
- In A.M., take axillary temperature before arising
- 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.

Don’t Rely Solely on Lab Tests

“Are not the feelings of the patients often as clinically valuable as the other findings? In no case can we wholly discount them. A good laboratory report is cold comfort to a patient whose symptoms remain unchanged, and the doctor can repeat such reports until he is blue in the face, but they will not help his patient much if unaccompanied by controlled symptoms and changed feelings. The successful physician is the one who knows best how to make his patients feel better.”

Henry Harrower, M.D. Endocrine Fundamentals 1931


“Mama says don’t rely solely on blood tests!”

Comparing Thyroid Medications

Desiccated Thyroid

- T1
- T2
- T3
- T4
- Calcitonin
- Diuretic Effect
- Selenium

Levothyroxine Sodium

- T4

Other Thyroid Rx. Choices

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

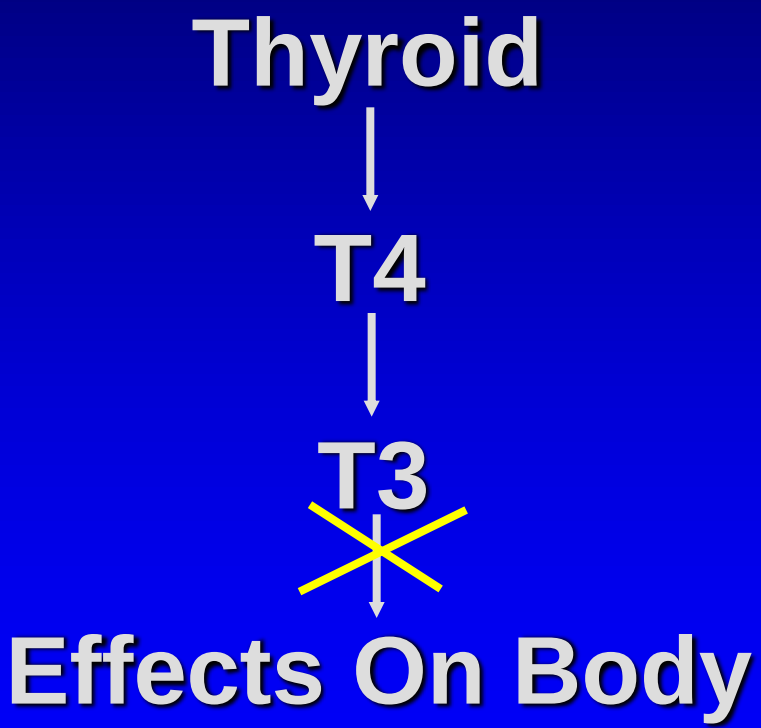
Desiccated Thyroid Treatment

- 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 Production

Thyroid

↓

T4

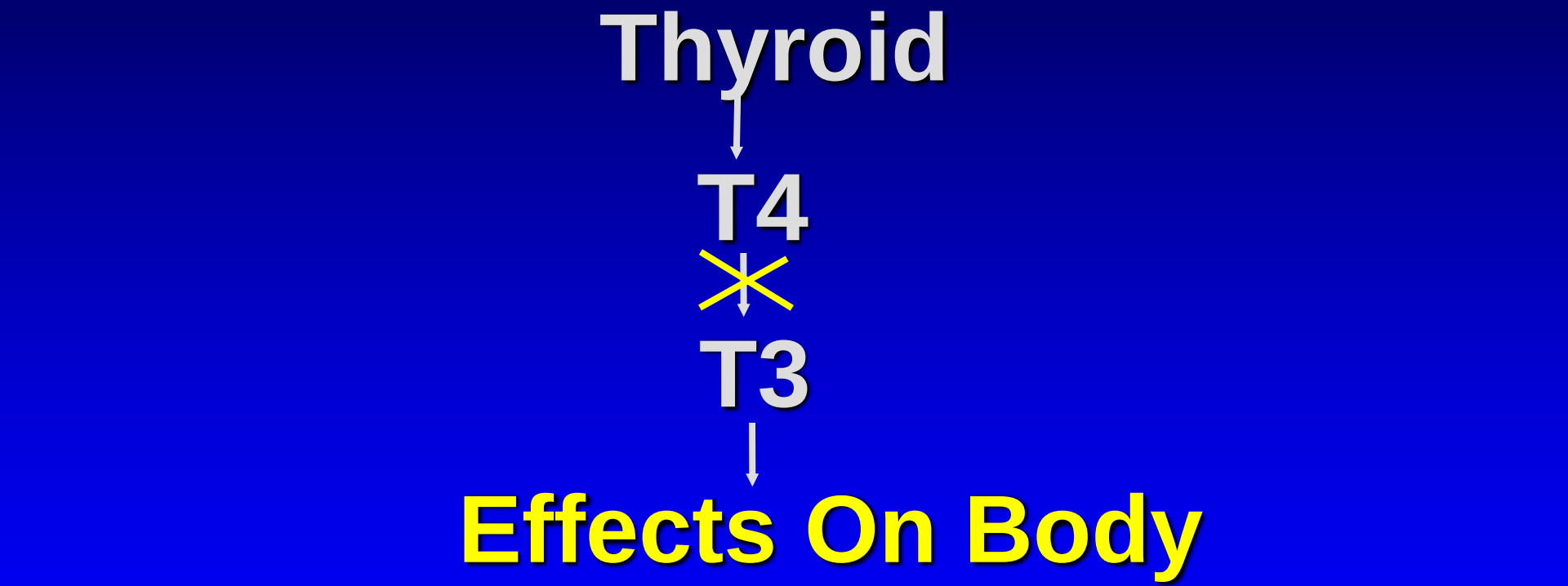
↓

T3

↓

Effects On Body

T4 Conversion Block



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

Nitrates

- Contaminant of drinking water
  - Nitrogen fertilizers
    - High levels found in green leafy and root vegetables
      - Organic lettuce found to have less nitrate as compared to conventional lettuce

Compared to women in the lowest quartile of nitrate intake from public water supplies, those in the highest quartile were found to have a 2.2x increase risk of thyroid cancer.

ESPA J. 2008;689:1-79
Food Addit. Contam. 2006;23:1283
Epidem. Vol. 21, N. 3. May 2010

T4 to T3 Inhibitors

Nutrient Deficiencies

- Iodine
- Iron
- Selenium
- Zinc
- Vitamin A
- Vitamin B2
- Vitamin B3
- Vitamin B6
- Vitamin B12

Medications

- Amiodarone
- Beta Blockers
- Birth Control Pills
- Iodinated Contrast Agents
- Lithium
- Methimazole
- Phenytoin
- Propylthiouracil
- SSRI
- Theophylline

T4 to T3 Inhibitors (2)

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

T4 to T3 Inhibitors (2)

- Aging
- Alcohol
- Alpha-Lipoic Acid
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- Diabetes
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- Lead
- Low Adrenal State
- Mercury
- Pesticides
- Soy
- Stress
- Surgery
- Radiation

Soy and Thyroid

- Soy protein and soy isoflavones:
  - Reduced T4 absorption
  - Block T4 to T3 conversion
  - Increase AIT

Thyroid. Vol. 20, N. 7, 2010 p. 755
Thyroid. 16:2006. p. 249

Isoflavones

- Inhibit TPO catalysed iodination
  - Daidzein and genistein
  - Inhibits intracellular thyroid hormone production
    - Soy products, peas,beans, nuts, grain products, coffee, and tea
    - Avg. 3.1mg dietary isoflavones consumed by 35% of U.S. adults daily
    - Adolescents diagnosed with Graves' or Hashimoto's more likely to be fed soy formula as infants

J. of Nutr. 2002:132:1319
J. Of American College of Nutr. 1990;9

• RECIPES INCLUDED! •

The Soy DECEPTION

Allergies | Cancer | Menopause | Osteoporosis | Thyroid Disorders | And Other Conditions

David Brownstein, M.D. & Sheryl Shenefelt, C.N.

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

“Never put your trust in anything but your own intellect…always think for yourself.”

Linus Pauling

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Overcoming THYROID Disorders

second edition

Chronic fatigue | Fibromyalgia | Graves' disease | Hashimoto's disease | Hypothyroidism

The holistic treatment plan outlined in this book will show you how safe and natural remedies can improve your thyroid function and help you achieve optimal health.

David Brownstein, M.D.

Holistic Medicine for the 21st Century

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Leo Tolstoy

“I know that most men, including those at ease with problems of the greatest complexity, can seldom accept even the simplest and most obvious truth if it would oblige them to admit to the falsity of conclusions they have delighted in explaining to their colleagues.”

Final Thoughts

- Iodine levels have fallen 50% in the last 30 years
- During this time, elevations in autoimmune thyroid illness, autoimmune disorders, thyroid cancer, breast cancer, prostate cancer and other cancers
- If iodine were a dangerous agent for the above conditions, incidences of the above conditions would not be rising over the last 30 years.

Final Thoughts (2)

- Start slow
- Check pre and post levels of iodine
- Follow patients closely
- Get ultrasounds before starting treatment when indicated
- Combine treatment with a holistic plan
  - Diet, vitamins, minerals, detox, etc.

Albert Szent-Gyorgyi, M.D., Ph.D

"Discovery consists in seeing what everybody else has seen and thinking what nobody has thought."

Nobel Prize 1937 for the discovery of Vitamin C


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American Nutrition Association

Iodine for Thyroid & Health
A Holistic Approach

David Brownstein, MD
May 6th, 2011

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This concludes this presentation of the American Nutrition Association