

## GOODHORMONEHEALTH NEWS

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The purpose of GOODHORMONEHEALTH NEWS is to disseminate new information to Dr. Friedman's patients and others who signed up to receive his newsletter. We encourage you to visit [www.goodhormonehealth.com](http://www.goodhormonehealth.com) and to make an appointment to see Dr. Friedman to discuss your medical condition. Please contact his office at [mail@goodhormonehealth.com](mailto:mail@goodhormonehealth.com) to suggest a future topic for GOODHORMONEHEALTH NEWS or to schedule an appointment.

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Dr. Friedman talked on "Adrenal insufficiency and the myth of adrenal fatigue" on HER Radio on August 21, 2014. Listen to the broadcast at <http://radiomd.com/show/her-radio/item/22747-the-major-hormones-affected-by-adrenal-insufficiency>

Dr. Friedman hosted a broadcast on "Hypopituitarism and Growth Hormone Deficiency" on October 5, 2014. Listen to the broadcast at [http://www.goodhormonehealth.com/hypopituitarism\\_201410060101\\_2.mp4](http://www.goodhormonehealth.com/hypopituitarism_201410060101_2.mp4)

Dr. Friedman hosted a talk on "Adrenal insufficiency: how to diagnose and treat" on Sunday June 8, 2014. Listen to the broadcast at [http://www.goodhormonehealth.com/adrenal\\_insufficiency-20140609%200101-1.mp4](http://www.goodhormonehealth.com/adrenal_insufficiency-20140609%200101-1.mp4)

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### New Hypothyroid Medications

There are several new thyroid hormone preparations that can be used to treat patients with hypothyroidism. These include a new preparation of levothyroxine called Tirosint that is the only thyroid preparation in a gel capsule. There is also new preparation of desiccated thyroid (from porcine thyroid) called WP thyroid, that is similar to Nature-Throid.

Many patients have trouble absorbing standard thyroid preparations such as levothyroxine, Synthroid or Levoxyl. Certain conditions and several medications (calcium, iron, vitamins that contain calcium and iron, and antacids or proton-pump inhibitors) affect absorption of levothyroxine that can lead to variable thyroid levels with resultant symptoms of either hypothyroidism. Alternatively, if the absorption was affected and then the condition improved or the medication was discontinued or taken separately from the thyroid medication, symptoms of hyperthyroidism can occur. An acidic stomach is needed to optimally absorb thyroid medications, so antacids and protein pump inhibitors (PPIs, Prilosec, omeprazole) can affect absorption. Conditions such as pernicious anemia, lactose intolerance, untreated celiac disease and gluten intolerance can also affect thyroid hormone absorption. The new thyroid hormone compound **Tirosint**, contains levothyroxine in a gel form with very little fillers or binders and comes in 10 doses (13 mcg, 25 mcg, 50 mcg, 75 mcg, 88 mcg, 100 mcg, 112 mcg, 125 mcg, 137 mcg, 150 mcg). It doesn't require an acidic stomach, so it can be used in patients on antacids and PPIs, and those with pernicious anemia, lactose intolerance, untreated celiac disease and gluten intolerance.

Tirosint is made in a dedicated production facility that means that no other products are produced in the same location. This eliminates the possibility of Tirosint becoming exposed to ingredients

that may be used in the production of other medicines. For people with serious food allergies or food restrictions, exposure to even minute quantities of certain ingredients may cause a severe reaction. Tirosint comes packaged in a color-coded blister pack to indicate its strength. The days of the week are indicated on each 7-day blister pack which acts as a reminder to patients that they have taken their daily dose. Its absorption is not affected by black coffee. Its absorption with food has not been tested.

Many of Dr. Friedman's patients prefer Tirosint because it has very little fillers or binders and want a more natural preparation. Some patients find it stronger than other preparations of levothyroxine and it often helps patients improve their hypothyroid symptoms that weren't improved with other preparations. Tirosint contains four ingredients, levothyroxine, gelatin, glycerin and water. Patients with lactose intolerance don't have to worry about it containing lactose and those who have gluten insensitivity don't have to worry about containing gluten and it has no dyes that some patients are allergic to. Other preparations of levothyroxine, including both brand names and generic, contain lactose, food dyes, magnesium stearate, sulfa, sugar, sodium, povidone (PVP) and talc and many patients have trouble tolerating or prefer not taking these components. The dosages of Tirosint include 13 mcg that allows for easy administration of a low dose of thyroid medicine that can be used also in combination with desiccated thyroid. The disadvantage of Tirosint is that there's no higher doses greater than 150 mcg, so patient on high-doses need to take two medicines. Tirosint is also more expensive than other thyroid brands although there are coupons available for reduced costs on the Tirosint website.

WP Thyroid, a new pure hypothyroid medication, and Nature-Throid, a hypothyroid medication around for more than 75 years, are two preparations of desiccated thyroid that can be used instead of Armour thyroid. WP Thyroid contains only two all-natural inactive ingredients, inulin (from chicory root) and medium chain triglycerides (from coconut) and is available in 8 strengths starting at ¼ grain and up to 2 grains (130 mg). Nature-Throid is hypoallergenic and available in 13 strengths (¼ grain to 5 grains). Note that 1 grain of WP Thyroid and Nature-Throid are 65 mg, while 1 grain of Armour Thyroid is 60 mg. Nature-Throid does contain a small amount of lactose monohydrate, making it a problem for some patients with lactose intolerance. It also contains 7 other inactive ingredients. Neither medication contains gluten, corn or artificial flavors, while the same cannot be said for other hypothyroid medications.

Dr. Friedman frequently uses these products, alone or in combination, to treat hypothyroidism. He is also involved in a study on Tirosint in which patients get a free supply for 6 months. This study is available to all of Dr. Friedman's existing patients who are on another preparation of L-T4 and have hypothyroid symptoms or an elevated TSH. Many of Dr. Friedman's patients who do not do well on one or more conventional thyroid preparations, do better on these medications. Dr. Friedman posits that treating hypothyroidism is like treating hypertension, if one drug doesn't work a second should be tried and that thyroid medications are often more effective in combination.

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### **Oxytocin for patients with pituitary dysfunction?**

The pituitary secretes several hormones; most of which are tested for and possibly replaced if a patient has pituitary dysfunction. The anterior pituitary makes ACTH that controls cortisol, TSH that controls thyroid hormone, growth hormone that controls IGF-I, LH and FSH that control testosterone and estrogen, and prolactin that is involved in milk production. The hypothalamus makes arginine vasopressin, which is also called anti-diuretic hormone (ADH), which controls

water re-absorption in the kidney and determines serum sodium levels. It also makes a hormone called oxytocin that is well known for its role in labor and delivery. These hormones are transported to the posterior pituitary where they are stored and released when needed. Either hypothalamic or pituitary dysfunction can affect release of the posterior pituitary hormones. With the exception of prolactin and oxytocin, we routinely measure these hormones in patients with pituitary dysfunction and correct them, if they are low.

Oxytocin is a very interesting hormone and may have a physiologic role besides its role in labor and delivery. There is some literature that shows that oxytocin is involved in bonding, especially in females but possibly also in males. It may also help control pain, help with intimacy and achieving orgasm and also help with issues of trust. It may also help with energy and confidence and abdominal pain and other symptoms of GI discomfort. It may help with preventing social withdrawal. Its levels in patients with pituitary dysfunction and whether it would be beneficial for the patient to have oxytocin replaced if their levels are low, has not been assessed.

Dr. Friedman has developed a questionnaire that will measure symptoms that could be related to oxytocin deficiency and is instructing his patients to have a 24-hour urine oxytocin level done at Meridian Valley labs. If that is below the range, he will then prescribe oxytocin nasal spray from Bellevue Compounding Pharmacy for three months and repeat the questionnaire and the 24-hour urine measurement of oxytocin at that time.

Dr. Friedman hopes that the oxytocin does provide benefit for his patients. Patients with more complete hypopituitarism, including those with Diabetes Insipidus (arginine vasopressin deficiency) are more likely to have low levels and benefit from replacement. Please note that this is not a true clinical study and patients or their insurance will be responsible for the costs of the testing and oxytocin. However Dr. Friedman wants to systematically observe the effects of oxytocin in patients with pituitary dysfunction. If you are a current patient of Dr. Friedman's and would like to have your oxytocin tested and if low, replaced, please contact his office by email. If you are not a current patient, we will need to see you first before we can administer the questionnaire and order the urine test.

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### **Endocrine Control of Salt and Water**

There are two important endocrine axes that control the body's salt, fluid and water status. These are two separate axes and it is helpful to think about them separately although they do interact. The first is the renin and aldosterone axis that primarily regulates fluid status (whether you are swollen or dehydrated). Renin is made by the kidney and goes to the adrenal gland to make aldosterone. Aldosterone helps retain salt in the kidneys and helps raise your blood pressure. Patients with low aldosterone lose salt in the urine and can be dehydrated. They will have low blood volume and may be dizzy when they stand up or have palpitations. They could have a high pulse. Their blood pressure is usually low and drops when they stand up. Their pulse also increases when they stand up. In general, a patient's blood pressure drops when standing and pulse post rises when standing but in patients with low aldosterone, this is exaggerated. Patient with low aldosterone often feel tired because they do not get enough blood to their brain and often feel worse on exercise as when the exercise more blood goes to the muscles instead of the brain and they feel worse.

To diagnose aldosterone deficiency, Dr. Friedman measures renin and aldosterone in the blood. He usually does it sitting, but sometimes he measures it both lying and standing. There's no need

for a urine aldosterone level. Patients with adrenal problems have low aldosterone and high renin and patient with pituitary or brain dysfunction may have low aldosterone and low renin. Other patients can also trouble with retaining urine sodium and have a high aldosterone and high renin.

Patients whose main manifestation of low aldosterone is low blood pressure, especially on standing and dizziness on standing called neurally-mediated hypotension or NMH. Patients that have high pulse on standing are called postural orthostatic tachycardia syndrome or POTS. Thus the diagnosis of hypoaldosteronism is based on laboratory testing, while the diagnoses of NMH or POTS is based on what happens to blood pressure and pulse on standing. The symptoms and treatment of all three are similar. Some doctors recommend a tilt table test to confirm these diagnoses, however Dr. Friedman has not found tilt table testing to be that helpful.

The treatment for low aldosterone starts off by increasing salt intake. Patient can also take licorice or licorice root or grapefruit or grapefruit juice as these block the enzyme that breaks down cortisol in the kidneys and allows cortisol to bind to the aldosterone receptor in the kidneys and helps raise blood pressure. For more severe cases Dr. Freeman often gives fludrocortisone which is also called Florinef. Florinef is a pretty benign medicine which is a mineralocorticoid unlike cortisol which is a glucocorticoid. These combinations of medicines which raise blood pressure usually help the patient symptoms and gives more energy and less dizziness on standing.

A patient with high aldosterone and low renin could have an aldosterone secreting adrenal tumor. These patients often have high blood pressure and low potassium and patients suspected of having high aldosterone should have a potassium, aldosterone and renin level measured that can be done at any time a day in any position. If low renin and high aldosterone is found, Dr. Friedman usually orders an adrenal CAT scan to look for tumor. If a tumor is found, Dr. Friedman orders other tests to make sure the aldosterone is truly high. He will then refer the patient for adrenal surgery.

The other important axis of water balance is the controlled by the hormone, arginine vasopressin (AVP); it's also called antidiuretic hormone or ADH. This hormone is made by the posterior pituitary and regulates water retention in the kidney, causes blood vessels to constrict and acts, along with CRH, to secrete ACTH from the pituitary which goes to the adrenals to secrete cortisol. Patient with pituitary problems especially in the posterior pituitary, often from surgery or prior radiation could be deficient in ADH and have a condition called diabetes insipidus (DI). Rarely the diabetes insipidus could be due to problems with the ADH receptor at the kidney. The main symptom of diabetes insipidus are excessive thirst and excessive urination with dehydration and the patient's sodium and osmolality are high. The patient's urine volume is also quite high.

To guide to diagnose diabetes insipidus, Dr. Friedman measures a morning serum and urine osmolality and ADH level after a 12 hour fast that includes no water. A high serum osmolality above 300 and a relatively low urine osmolality usually below 500 and a low ADH confirms diabetes insipidus. Dr. Friedman also looks at the 24 hr urine volume and if it's above 3000 mL, it's consistent with diabetes insipidus. The treatment for diabetes insipidus is a hormone called desmopressin or DDAVP which is usually given as a pill, but can also be given as a spray in the nose. Sodium levels need to be measured to make sure the dose of DDAVP is correct. Dr. Friedman also looks at your urine frequency to make sure you are not urinating too much especially at night. If you are or if your sodium is high, he will raise the dose. If your sodium is low, he will lower the dose.

Too much ADH is a condition called syndrome of inappropriate anti-diuretic hormone (SIADH). This manifests as low sodium and sometimes extra fluid retention, although that's unlikely. This is usually diagnosed with a serum sodium level and is often due to medicines, especially psychiatric medicines, lung disease or brain lesions. It can also be due to drinking too much water. Treatment is usually water restriction.

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### **Remarkable study comparing Armour Thyroid and levothyroxine**

Several studies have shown that many patients with hypothyroidism on levothyroxine replacement have low quality-of-life. An alternative to levothyroxine replacement for patients with hypothyroidism is desiccated thyroid that comes from pig thyroid, of which the most common brand is Armour Thyroid. Armour Thyroid has been in use for almost 100 years (since the 1920s) although it went out-of-favor about 25 years ago with more doctors prescribing synthetic levothyroxine. However recently there has been an added interest in using Armour Thyroid and other formulations of desiccated thyroid, partly because of the low quality-of-life some patients have on levothyroxine replacement and partly because of an interest in patients to use something they consider “more natural” and less synthetic. Most endocrinologists and consensus guidelines by the American Thyroid Association still recommend the use of synthetic levothyroxine and to avoid desiccated thyroid, in part due to the erroneous belief that desiccated thyroid is not standardized. .

In the May 2013 issue of *Journal of Clinical Endocrinology and Metabolism*, Huang and colleagues from the Walter Reed Medical National Military Medical Center in Bethesda, Maryland published the results of a randomized crossover study in which 70 patients completed the study and received either desiccated thyroid or levothyroxine replacement. In the introduction to this paper they commented that the T4 and T3 content of desiccated thyroid preparations, especially Armour Thyroid, has now been standardized. They cited a paper by JC Lowe published in the journal *Thyroid Science* in 2009 states that it is that Armour Thyroid has indeed been standardized so that 1 grain of Armour Thyroid contains 38 mg of L-T4 and 9 mg of liothyronine (T3).

The 2013 study by Huang and colleagues used to a conversion factor that 1 mg of Armour Thyroid was equivalent to 1.67 µg of levothyroxine to determine equivalent dosing between the two preparations. Patients were on a stable dose of levothyroxine and had a normal TSH before the study started. Half of them were then initially given Armour Thyroid and half of them continued on the levothyroxine. 78 patients were randomized and 70 concluding the study, with 35 received Armour Thyroid at the beginning and 35 received levothyroxine at the beginning. The dose of either the levothyroxine or the Armour Thyroid was adjusted after six weeks so that the TSH was between 0.5 and 3.0. They continued on that dose for an additional 10 weeks. After 16 weeks, patients were switched over to the other compound with the same adjustment at 6 weeks and continued for another 10 weeks.

At the beginning of the study and at the end of each 16 weeks session, the patient underwent thyroid function test, biochemical testing, memory testing (the Wechsler memory scale), a depression inventory, and a thyroid symptom questionnaire. They compare the results before and after treatment for each group. There was not a statistical improvement in symptoms for general health questionnaires or neuropsychological testing, however there was a trend toward improvement in these tests for the group that took the desiccated thyroid compared to the levothyroxine replacement group. There was a 2.86 pound weight loss among the group that took

the desiccated thyroid compared to the levothyroxine group that was significant. Patients on Armour Thyroid did get a slightly lower HDL level that is the good cholesterol, so that could be a potential detriment to Armour replacement.

TSH was slightly higher in the group on Armour Thyroid than in the group on levothyroxine, so possibly if the dose of Armour Thyroid was a little bit higher (the authors recommended 1 mg of Armour Thyroid = 1.47 µg of levothyroxine), the TSH would have been lower and more improvement might have been seen with the Armour Thyroid. Both total T4 and free T4 were much lower on the Armour Thyroid than on levothyroxine replacement indicating that patients on Armour Thyroid need an additional low dose of levothyroxine, as Dr. Friedman often prescribes. Total T3 went up on Armour Thyroid as expected. Baseline (on stable levothyroxine replacement) reverse T3 (a test used by many functional medicine doctors and other non-Endocrinologists to track poor T4 to T3 conversion) was above the range in many of the patients suggesting that levothyroxine replacement increases reverse T3 and did go down with the Armour Thyroid compared to the levothyroxine replacement. This suggests that levothyroxine raises reverse T3 and Armour Thyroid lowers it, but doesn't conclude that patients with an elevated reverse T3, either on no treatment or on levothyroxine replacement need to go on desiccated thyroid.

Most importantly, 49% of the patients preferred Armour Thyroid, 19% preferably levothyroxine and 33% did not notice a difference. This was important as the study was blinded and they didn't know which thyroid preparation they were taking and indicates some subtle improvement in how they were feeling with Armour Thyroid. The subgroup that preferred Armour Thyroid lost even more weight; they lost 4 pounds on Armour Thyroid compared to levothyroxine. They had better well-being and their thyroid symptoms were significantly better with better cognitive function on Armour Thyroid compared to when they were on levothyroxine. This suggests that a subset of patients need Armour Thyroid as opposed to levothyroxine alone. These patients may be poor converters of T4 to T3.

There were no side effects in the Armour Thyroid group; specifically there was no increase in heart rate or pulse.

The authors concluded that improvement with Armour Thyroid may not be detected by the relatively insensitive methods used in the study. They also concluded that once-daily desiccated thyroid in place of levothyroxine caused modest weight loss and possible improvements in symptoms and mental health without appreciable adverse effects. They recommended studies with a longer duration to clarify the efficacy and safety of desiccated thyroid.

Dr. Friedman has several comments on this paper. First he found it to be a very well designed and well executed study done by a reputable group and published in a superb journal. He notes that the Armour Thyroid was given as a single dose once a day without levothyroxine. Since Armour Thyroid contains T3 that has a short half-life, Dr. Friedman prescribes Armour Thyroid twice a day with additional levothyroxine. He suspects that if the study gave Armour Thyroid twice a day plus levothyroxine supplementation those patients would have done even better than on once a day Armour Thyroid. This study clearly refuted that Armour Thyroid is inferior to levothyroxine.

The study also pointed out the importance of trying to determine the subset of patients to put on desiccated thyroid. A significant subset of patients did prefer the desiccated thyroid. Those who preferred desiccated thyroid were more likely to have autoimmune thyroid disease and had a

slightly higher reverse T3, although neither of these were significant. The study examined all patients with hypothyroidism on levothyroxine replacement, most of whom were doing well. If the study used the subset of patients who were on levothyroxine replacement and feeling poor, Dr. Friedman surmises that they would have done even better on desiccated thyroid. Many of the patients who come to see Dr. Friedman have a low quality-of-life on levothyroxine replacement. If your doctor refuses to prescribe desiccated thyroid, show him the 2013 article or better yet, come out and see Dr. Friedman.

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## 7 Overlooked Endocrine Causes of Fatigue

**Many patients suffer with fatigue and are told that there is nothing to do for it. Here are 7 endocrine causes of fatigue that are often overlooked**

- 1) Low aldosterone-Aldosterone is a salt-regulating hormone made by the adrenal glands and patients with low aldosterone have low blood pressure, like salty food and don't get enough blood going to the brain causing fatigue. Have your doctor measure your serum aldosterone level. If it's less than 5 ng/dL, you may have an aldosterone deficiency. Treatment includes consuming more salt or eating licorice or grapefruits, although some patients may need synthetic aldosterone called fludrocortisone.
- 2) Low ferritin-Ferritin measures iron stores and is a more sensitive marker of low iron stores than either a CBC (complete blood count) or iron levels. Optimal ferritin levels are around 70 ng/mL. Those with low levels often don't get enough blood going to their brain and they feel tired. Iron is also needed for thyroid hormone biosynthesis. Those with low levels of ferritin should take iron pills.
- 3) Growth hormone deficiency-growth hormone (GH) is made by the pituitary and adults need GH as well as children. Adults with low GH have loss of muscle, accumulation of fat, especially in the abdomen, psychological changes, joint pain, poor sleep and pronounced fatigue. Growth hormone deficiency usually occurs in patients with pituitary problems and is diagnosed by a stimulation test to see if the pituitary makes GH such as a glucagon stimulation test.
- 4) Menopause-Women undergoing a drop in their estrogen levels due to menopause often feel extremely tired. Women with irregular or no menses and hot flashes should have a day 3 FSH and estradiol measured. If the FSH is high and estradiol is low, treatment with estrogen patches or creams plus progesterone can often help the fatigue.
- 5) Cushing's syndrome-This relatively rare condition is probably underdiagnosed and occurs in people with either a pituitary or less often an adrenal tumor that causes the body to make too much cortisol. Patients with Cushing's syndrome have debilitating fatigue yet are wired at night and sleep poorly. The diagnosis is made with imaging tests as well as urine, blood and salivary cortisol tests and the treatment is usually pituitary surgery.
- 6) Opiate pain pills-opiate pain pills (also called narcotics), such as Vicodin, oxycodone, Tylenol with codeine are used to treat pain syndromes but when used chronically suppress hormonal function and can lead to low testosterone in men, growth hormone deficiency, low cortisol and other hormone problems all leading to fatigue. The solution is to taper off the opiates.
- 7) Hashimoto's thyroiditis. It is well known that hypothyroidism have fatigue. Most patients with symptoms of hypothyroidism and an elevated TSH should be treated with thyroid hormone. The most common reason for hypothyroidism is Hashimoto's thyroiditis in which the thyroid is attacked by antibodies. A recent study found that patients with elevated TPO antibody titers have more fatigue than those without, even with a normal TSH. There is no clear treatment for those with elevated TPO antibody levels although selenium may lower them.

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## **What are the Optimal Levels of Vitamin D?**

Vitamin D is in the news frequently. It has been touted as a wonder hormone that can prevent cancers, aging, heart disease, and other maladies. However, scientific studies showing that vitamin D actually prevents these conditions are rare. Many patients come to me confused about what their optimal level of vitamin D should be, especially as many more alternative providers have recommended very high levels of vitamin D. While these may not be dangerous, there are unlikely to be beneficial. These recommendations are not based on the literature or are related to association data.

The first thing to understand is the difference between association and causation with medicines. Causation means that if a person has a low level of a hormone and you give him that hormone, the condition improves. This is usually done in double-blind studies. For example, Dr. Friedman did a double-blind study giving patients with prediabetes high doses of vitamin D or matching placebo and carefully looking at their diabetes parameters such as their insulin resistance and insulin sensitivity. This was a large study with over 100 patients, and vitamin D was ineffective compared to placebo at treating the prediabetes. It had no effect on their insulin sensitivity and insulin resistance, and it did not prevent the development of diabetes from prediabetes. This was published in a very prestigious journal called *Diabetes Care*. These are the kind of studies that are needed to show that vitamin D deficiency actually causes a disease and that correcting that deficiency actually helps.

On the other hand, association studies are studies that measure a level of a hormone and show that people with those levels are more likely to have a certain disease. This has been done in the case of vitamin D in association with heart disease, diabetes, and cancers. This does not necessarily mean that in the patients having low vitamin D, the vitamin D level is causing the disease, it just shows there is an association. It is very hard to draw many conclusions from associations of disease and as has been pointed out by many researchers, patients with low vitamin D levels are likely to be sicker or inactive and outside less and it is those reasons that vitamin D levels may be associated with an illness and not be causing the illness. If you are going to use association data, it is good to look at association data that has used several thousand patients and has been reproduced. There is a database called NHANES that measured vitamin D levels and looked at association for diseases as well as cause of death. There is a very important paper published in a prestigious journal called *Journal of Clinical Endocrinology & Metabolism*. The lowest association with all causes of death occurred when the patient had a 25-hydroxyvitamin D level (that is the form of vitamin D that is usually measured) between 30 and 40 had the lowest rate of dying. Patients with a vitamin D level less than 30 and greater than 40 all had a greater association with dying. The types of diseases they died from included cancers and heart disease for both the ones with low levels and high levels. Although it is true that more patients had low levels and the numbers were larger, the numbers associated with higher levels of vitamin D and association with cause of death was still significant.

Therefore, if you are going to use an association data, the data is clear that it is best to have a vitamin D level between 30 and 40. Since it is easy to obtain that level, Dr. Friedman recommends patients to have a vitamin D level between 30 and 40. If you go to another doctor and they say you should have your levels higher, tell that doctor, "read the literature".

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### **7 Common Myths about Thyroid Disease**

1) Myth- Armour thyroid is unreliable and its pills vary in potency depending on whether the pig has hyperthyroidism or hypothyroidism.

Fact: The health status of the pig has nothing to do with the quality of the pills you take. Forest Pharmaceuticals, which makes Armour, has a rigorous quality control process that ensures that all lots are consistent.

2) Myth: Patients on thyroid medicines need cortisol to support the thyroid.

Fact: A very small percentage of people with autoimmune thyroid disease have Addison's disease or other reasons for adrenal insufficiency and need cortisol prior to starting thyroid medicines. Patients with symptoms of adrenal insufficiency (weight loss, nausea, vomiting, diarrhea, joint pain, abdominal pain) should be evaluated by an endocrinologist. Those without those symptoms can safely take thyroid medicine without taking cortisol.

3) Myth: You can use iodine instead of thyroid medication because it's safer and more natural.

Fact: Iodine can make hypothyroidism (and hyperthyroidism) worse and should not be taken as a supplement in patients without first discussing it with your endocrinologist. But the amount of iodine in salt or a multi-vitamin is low enough that it's safe to take.

4) Myth: Thyroid disease is easy to treat.

Fact: For the lucky ones, thyroid disease is easily remedied with thyroid hormone. But for some people, blood tests don't match how you feel. While your TSH may appear normal, you may have symptoms of hypothyroidism. Determining the dosage and type of treatment then, can be difficult and should be done under close supervision of a knowledge of an endocrinologist familiar with different thyroid preparations.

5) Myth: All patients with Hashimoto's hypothyroidism need to be on a gluten-free diet.

Fact: Both celiac disease (in which one needs to be on a gluten-free diet) and Hashimoto's hypothyroidism are autoimmune diseases and if you have Hashimoto's hypothyroidism, you are more prone to getting celiac disease. Yet the overwhelming majority of patients with Hashimoto's hypothyroidism do not have celiac disease and do not need to be on a gluten-free diet.

6) Myth: There is no need to measure a free or total T3 in patients treated with levothyroxine (L-T4) preparations for hypothyroidism. Fact: A recent study found that about 15% of patients with hypothyroidism treated with L-T4 had low freeT3 levels even with a normal TSH. These patients may benefit from desiccated thyroid preparations or L-T4/L-T3 combination treatment.

7) Myth: All patients with hypothyroidism can safely be treated with once a day Armour thyroid. Armour thyroid has both L-T4 and L-T3 (liothyronine) in it of which L-T3 has a short

half-life and should be given twice a day. Otherwise patients will have low free T3 levels in the afternoon, evening and next morning before their dose. Armour thyroid has too much L-T3 and not enough L-T4, so some extra L-T4 is often needed for patients on Armour thyroid.

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