[CN]Chapter 4

[CT]Hypothyroidism

[IP]You sleep eight hours a night, but you still feel sluggish. You haven't changed your diet, but you're gaining weight. To top if off, you're feeling achy and depressed. It's easy to blame these symptoms on a busy lifestyle or advancing age, but for millions of people – especially women – your thyroid is the culprit. Here's what happens when your thyroid isn't producing enough thyroid hormone and hypothyroidism develops.

[H1]What is Hypothyroidism?

[NF]Millions of people suffer from some form of thyroid disease. The vast majority – approximately 80 percent -- have an under active thyroid, or what is called hypothyroidism. According to the American Association of Clinical Endocrinologists, hypothyroidism affects about 10 percent of all women and three percent of men. Studies suggest that approximately 13 million Americans are undiagnosed.

Several factors can cause the thyroid to reduce its production of thyroid hormone. Here in the U.S., the most common cause of hypothyroidism is an autoimmune disorder called Hashimoto's thyroiditis, in which the body launches an internal attack on its own healthy thyroid tissues, destroying the gland's ability to produce thyroid hormone. We will explore Hashimoto's in detail in chapter six. Hypothyroidism is also more common with aging. By age 60, 17 percent of all women and nine percent of men will have an under active thyroid.

Around the world, the condition is caused primarily by a deficiency of iodine, a mineral found in saltwater that the body uses to produce thyroid hormone. But with the introduction of iodized salt in the U.S. in the 1920s, a deficiency of iodine is practically unheard of in this country.

In some cases, your hypothyroidism may be linked to other medical conditions or caused by a medication you're taking. For instance, people who have been treated with radioactive iodine to treat hyperthyroidism often develop hypothyroidism. Those who

take medications such as lithium, prednisone, and propranolol are also vulnerable to hypothyroidism. In addition, anyone who has undergone thyroid surgery, also called thyroidectomy, or radiation to your neck or upper chest is likely to develop an under active thyroid.

[E-Fact]

[SB]Primary hypothyroidism refers to an under active thyroid caused by a deficiency in thyroid hormone. Central hypothyroidism is a term that describes a reduction in thyroid hormone caused by problems with the pituitary gland. Although the causes differ, treatment is usually the same.

[ESB]

Of course, not everyone who gets older or takes these medications will develop hypothyroidism. But your risk does go up if you have other risk factors, including:

[BL]A family history of thyroid problems.

[BL]A personal history of endocrine disease, including diabetes.

[BL]Illnesses or injuries involving the hypothalamus and/or the pituitary gland.

[BL]A personal or family history of autoimmune illness.

[BL]Recent pregnancy and delivery.

[BL]Illnesses such as chronic fatigue immune deficiency syndrome or fibromyalgia.

Regardless of what triggers an under active thyroid, the end result is the same: hypothyroidism causes all your body functions to slow down. This total body slowdown produces signs and symptoms that will eventually become apparent.

[H1]What Hypothyroidism Looks Like

[NF]When your thyroid first starts to produce less thyroid hormone, you won't know it. It's rare to have any symptoms initially, and you may feel perfectly fine. Over time however, as your metabolism begins to slow, you may start to notice that you are sluggish and fatigued.

Gradually, the condition begins to take its toll on your entire body, slowing everything from your heart rate to your digestion. Below

are some of the most notable symptoms of hypothyroidism. Keep in mind that you may not have all these symptoms.

[H2]Weight Gain

For many people, the most disturbing symptom of hypothyroidism is unexplained weight gain, which occurs – ironically -- even as your appetite shrinks. If you've been trying to lose weight, you might find it has become impossible, no matter how little you eat or how much exercise you do. In fact, even your best efforts to eat less may be met with weight gain.

[E-ssential]

[SB]Your thyroid gland is only one factor influencing your basal metabolic rate (BMR). BMR is also affected by genetics, the amount of exercise you do, and your body's fat and muscle composition. Those who exercise more have a faster BMR as do people who have more muscle. BMR can also be affected by illnesses such as diabetes.

[ESB]

The weight you're gaining however, is initially the result of swelling and not the accumulation of fat. As the kidneys retain more water and sodium, more water is left to circulate in the body, causing tissues to swell and weight to climb. Eventually however, the body will also accumulate fat. Most of the time, it will top off at no more than 10 to 20 pounds – just enough to set off alarm bells and make it hard to squeeze into your jeans. Occasionally, people with hypothyroidism will gain even more weight.

[H2]Foggy Mind

Forgetfulness is often a byproduct of our busy and stressed out lives. But in people who have hypothyroidism, the mind may feel similarly strained. Efforts to concentrate and focus may feel overwhelming, and your memory may become shaky and unreliable. Some people call this brain fog. As a result, it can be difficult to follow simple directions or perform your job. This problem can also slow your reaction time, which can affect your driving abilities.

[H2]Depression

It’s normal for everyone to experience an occasional bout of the blues, especially if you’re going through a difficult time. But in people who have depression, feelings of emptiness, helplessness and hopelessness may linger for no real apparent reason. As a result you may lose interest in activities that normally brought you great joy. Such feelings are a normal byproduct of hypothyroidism, and generally go away once the hypothyroidism is treated.

[H2]Skin, Hair and Nails

It’s bad enough that low thyroid function is making you tired, swollen, and depressed. Unfortunately, a sluggish thyroid can take a toll on our appearances, too. Skin may become pale and dry, and even crack. Hair may become dry and brittle. Some people may notice that they are losing more hair than normal, and that hair loss is occurring elsewhere on their body, too. A common place to lose hair is at the outer part of your eyebrows. At the same time, fingernails may become dry and brittle and develop grooves that cause the surface to become uneven.

[H2]The GI Tract

Thyroid hormones play a role in the way your body breaks down food and moves it through the gastrointestinal tract. That's because your digestive tract is lined with muscles that contract in order to propel the digested food. When you become deficient in thyroid hormone, this digestive process slows down. As the propulsion of food into the bowel slows, you may notice that you are frequently constipated.

[H2]Menstruation and Pregnancy

Women who have hypothyroidism may notice that their periods have become heavier and more frequent. Some women may stop ovulating, making it difficult to get pregnant. It may also be difficult to retain a pregnancy: six of every 100 miscarriages are the result of hypothyroidism.

[E-Alert]

[SB]It's easy to mistake hypothyroidism for premenstrual syndrome (PMS). The two conditions have similar symptoms – fatigue, depression, bloating, and weight gain, among them. Having an under active thyroid can make your PMS symptoms

worse. If you suffer from bothersome PMS, ask to have your thyroid checked. Treating your thyroid problems usually lessens your PMS, too.

[ESB]

[H2]Swollen Thyroid Gland

In some people with hypothyroidism, the gland may actually become enlarged creating a condition called a goiter. Some people can see this enlargement by performing the neck check. You may also notice that your voice is hoarse as the swollen gland presses against your vocal cords. In some cases, you may experience coughing, difficulty breathing, and trouble swallowing.

[H2]Heart Function

Hypothyroidism causes your pulse to slow as your heart rate decreases. In addition, your heart may weaken, and fluid can seep into the heart muscle, causing it to swell. You may also experience an increase in your blood pressure. As a result of this slow down in activity, your heart is forced to work harder to get oxygen and

nutrients throughout your body. This can put you at risk for heart failure, a potentially life-threatening condition.

[H2]Other changes

Hypothyroidism causes myriad other bodily functions to change, too. For instance, you may notice that you are extra sensitive to cold temperatures, and that your hands feel cold. You may notice that you are less interested in sex or that your allergies seem worse. You may also experience frequent headaches and notice that your muscles are achy, tender, and stiff. Any cuts, bruises and infections you suffer may take longer than normal to heal.

Blood tests may reveal other health problems associated with your under active thyroid. For instance, you may develop high cholesterol, a problem that if untreated, can lead to heart disease. You may also develop anemia, or low red blood cell counts. Only some types of anemia, in hypothyroidism, there is not a deficiency of iron in the blood.

Hypothyroidism also impacts how your body responds to its environment. Medications you take for example, may produce more pronounced side effects.

[E-Alert]

[SB]Women who have a hypothyroid have another reason to quit smoking. Studies show that women who smoke had higher levels of LDL, the bad cholesterol, as well as higher total cholesterol levels, both risks for heart disease. The smokers also had more muscle problems. Cigarette smoking apparently impairs the secretion and action of thyroid hormone.

[ESB]

In some cases, it may take years for any symptoms of hypothyroidism to emerge. When they do, it’s easy to mistake them for other health problems or life situations. For instance, you may blame the fatigue on long hours at the office, your weight gain on too many social outings, and your aches and pain on arthritis. It isn’t until you do a thyroid test that you will discover that the root of your problems is a deficiency in thyroid hormone.

Over time, without treatment, all these symptoms may worsen. And if it goes untreated long enough, hypothyroidism can be deadly. The good news is, treatment is readily available and can quickly restore the thyroid to its proper function.

[H1]Making the Diagnosis

[NF]Treatment for hypothyroidism quickly improves your symptoms, but treatment is possible only if you're properly diagnosed. So if you suspect you have hypothyroidism, it's important to get diagnosed promptly.

To find out whether you are truly deficient in thyroid hormone, your doctor should perform a thorough physical exam and order blood tests. In some cases, the results of your blood tests will make it clear that you have hypothyroidism. But in other cases, the results may be less revealing.

In any case, a doctor should also take into account the signs and symptoms that you are experiencing, and work toward getting you properly diagnosed, even if it isn't hypothyroidism causing your problems. After all, many of these symptoms do overlap with other

medical conditions such as depression, chronic fatigue syndrome, and fibromyalgia.

[H2]History and Exam

To figure out whether you have hypothyroidism, your doctor will want to know your health history as well as that of your family. He should engage you in a conversation about your health and probe into your health status. What symptoms are you concerned about? How is your mood and energy level? Do you notice any swelling or changes in your voice?

Your physician will also perform a physical exam. He may check your fingernails, your complexion, and your pulse. He should also perform a hands-on check of the thyroid gland to see if it is enlarged.

[E-ssential]

[SB]Talk to your family before you go to the doctor. Family history is an essential piece of information when it comes to diagnosing thyroid disease. Ask relatives about unusual symptoms as well as actual diagnoses for disease.

[ESB]

During the visit, be sure to share details about your health, including any medications you may be taking and any recent illnesses. Don’t be shy about discussing your lack of libido or your recent bouts of depression. Although these details may seem embarrassing to you, they are actually signs and symptoms of disease that can assist your doctor in making a proper diagnosis.

[H1]Blood Tests Do Tell

[NF]One of the most important things your doctor will do is order blood tests to figure out if you have hypothyroidism. Blood tests are critical in determining whether your thyroid is the cause of your symptoms. It’s also a relatively simple process. What does get tricky is making sense of the alphabet soup that comes with the lab results.

[H2]TSH Levels

For most doctors, the most telling measure of all is the level of thyroid stimulating hormone (TSH) in your blood. As you might recall, TSH is the hormone released by the pituitary gland that tells

the thyroid gland to release more hormones. Higher than normal levels of TSH reveals that your pituitary is trying to stimulate the thyroid gland to release more thyroid hormone.

The American College of Clinical Endocrinologists currently considers normal levels of TSH to be in the range of 0.3 milliunits per deciliter (mIU/dL) to 3.0 mIU/dL – a change made in November 2002 when the range was narrowed from 0.5 mIU/dL to 5.0 mIU/dL. The new more stringent definition of normal has paved the way for more diagnoses of hypo- and hyperthyroidism. Anything above that range might be considered hypothyroidism, depending on other factors. Measures below it might be hyperthyroidism.

Although TSH levels are considered the best gauge of thyroid function, there are times when this measure is less than ideal. For instance, measuring TSH assumes that the pituitary gland is healthy and functioning properly. But if the pituitary gland has a tumor, it may be incapable of producing enough TSH. Deficiencies in TSH may also be caused by damage to the hypothalamus

brought on by an injury, tumor, or stroke. In these cases, the TSH level may be inappropriately normal, even when levels of thyroid hormone are low.

In addition, the time of day that your blood is drawn makes a difference. TSH tends to be in the mid-range in the early morning, drops at noon, then rises at night. That's why other measures may also be important.

[H2]Total T4 and Free T4

Total T4 is just that – a measure of all the T4 in your blood, including the T4 that is bound to protein and unavailable to body cells for use. In fact, the bulk of the T4 released by your thyroid is bound to proteins.

Although testing for total T4 has been used in the past to diagnose hypothyroidism, today it is considered a less useful tool. That's because the amount of total T4 can be affected by the amount of binding proteins in the blood. The amount of protein is influenced by medical conditions such as certain types of liver and kidney

diseases as well as by pregnancy. Nonetheless, low levels of total T4 can often suggest that you have hypothyroidism.

[E-Alert]

[SB]A good thyroid doctor will rely on more than just the TSH test as a way to diagnose hypo- or hyperthyroidism. The TSH test after all, reveals only part of the picture, ie. how much the pituitary gland is egging on the thyroid gland for more hormone. More comprehensive testing will involve tests for free T3 and free T4 – the actual amount of *available* thyroid hormone.

[ESB]

A more useful diagnostic tool is the free T4 test. This test measures the unbound T4 in the blood, which is called free thyroxine. Too little of it is a sign of hypothyroidism.

If your doctor decides to test free T4, he should use a lab that uses the equilibrium dialysis method, which involves separating the free hormone from the bound version. Free T4 is the thyroid hormone available to enter body cells, where it can be converted into T3, the active form of thyroid hormone.

In patients who have hypothyroidism, free T4 levels are rarely lower than normal. Patients with hypothyroidism, especially mild hypothyroidism usually have an elevated TSH with a low-normal free T4 because the TSH goes up before the free T4 does. Your doctor needs to consider the relationship between free T4 and TSH to see if there is a discrepancy that may suggest a problem.

[H2]Total T3 and Free T3

T3, also called triiodothyronine is the active form of thyroid hormone. The total T3 in your blood is generally not an accurate measure of hypothyroidism, but may be used to diagnose hyperthyroidism.

Another test that is occasionally helpful for diagnosing hypothyroidism is one that measures the amount of free T3 in your body. Free T3 is the active form of triiodothyronine, the unbound version of the hormone that circulates in the blood. It is the active part of thyroid hormone produced by the conversion of T4 to T3. Again, if your doctor decides to measure free T3, he should use a

lab that uses the equilibrium dialysis method for a more accurate measurement.

People who have hypothyroidism rarely have low levels of free T3. Most of the time, even in hypothyroidism, the body increases the enzymes that convert T4 to T3, so the free T3 remains normal.

[E-ssential]

[SB]The hands can reveal whether you have hypothyroidism. Dr. Friedman always checks to see if they have an orange hue since people with hypothyroidism have trouble breaking down beta carotene, a substance in carrots and sweet potatoes.

[ESB]

An old way to indirectly measure free T4 and free T3 involves the resin T3 uptake test (RT_3U), an indirect measurement that estimates the amount of free T4 and free T3. This test tells you whether you have a lot of thyroxine binding globulin (TBG), the protein that carries most of the T3 and T4 in your blood. RT_3U is inversely proportional to TBG levels; the more TBG you have, the lower your RT_3U levels will be.

High levels of TBG means there are more proteins available to bind T4 and T3, leaving less free T4 and free T3 in the blood. Elevated levels of TBG can be caused by pregnancy, estrogen, and oral contraceptives. Patients with altered levels of TBG do not have symptoms of hypo- or hyperthyroidism. In fact, if your doctor measures free T4 and free T3, the TBG alterations won't even be detected. For these reasons and others, the resin T3 uptake test is rarely used now and has been replaced by tests that directly measure free T4 and T3.

[H2]Thyroid Autoantibodies

When people get sick, the immune system produces antibodies to ward off the invading virus or bacteria. But in people who have an autoimmune condition, autoantibodies are produced to fight the patient's own body tissues, which for mysterious reasons are being treated as harmful invaders. These autoantibodies take aim at the patient's own body tissue, treating it as if it were an invader such as a virus or bacteria.

[E-Fact]

[SB]Autoimmune diseases are the fourth leading cause of disability among women in the U.S. These diseases can affect myriad body systems and organs, including connective tissue (lupus), the joints (rheumatoid arthritis), and central nervous system (multiple sclerosis).

[ESB]

Unfortunately, the thyroid can be the target of an autoimmune attack. In the process, several antibodies may be produced. These substances are easily measured in the blood and serve as markers, or physical evidence, of a disease process.

An autoimmune attack on the thyroid gland often triggers the production of antithyroid peroxidase (TPO) antibodies. Anti-TPO antibodies wreak havoc by attacking parts of the thyroid cells that produce thyroid hormone. Testing for these anti-TPO antibodies has become the gold standard for detecting Hashimoto’s disease. More than 80 percent of people with Hashimoto’s will test positive for anti-TPO antibodies. Some doctors will test for anti-TPO antibodies even if other tests appear normal. If your anti-TPO

antibodies are elevated, your hypothyroidism is probably caused by Hashimoto's thyroiditis.

Antithyroglobulin antibodies can also be found in Hashimoto's thyroiditis, but are not as helpful as anti-TPO antibodies and do not need to be ordered to diagnose Hashimoto's thyroiditis. Similarly, some doctors may still order a test for antimicrosomal antibodies, which is a less specific test than the anti-TPO test. If you're already getting an anti-TPO test, then you do not need to be tested for antimicrosomal antibodies.

[H1]Normal vs. Abnormal Test Results

[NF]As you might have noticed, we have not described what constitutes high, low or normal levels of most of these hormones and antibodies. So, you may wonder, how do I know if my measurements are normal or abnormal?

[E-ssential]

[SB]To check for hypo- or hyperthyroidism, Dr. Friedman places his hands just a touch below the patient's. If the patient's hands

emit coldness, it's another sign of hypothyroidism. If they give off warmth, it's a sign of hyperthyroidism.

[ESB]

Exactly what constitutes normal varies considerably depending on the lab your doctor uses. Different labs use different standards of measurement. And unlike some medical tests, which quickly reveal whether you do or don't have an infection – strep throat is an example -- thyroid hormone test results must be placed in proper context. This is known as the reference range, which some doctors may call the "normal" range.

A reference range is determined first by testing a large group of healthy people. Levels for this group are then taken together to create a range of what is considered healthy. The result of your test then is measured against a group that is similar to you in age, gender and health status. For instance, pregnant women would have a different reference range than women of the same age who are not pregnant.

To find out if your hormone levels are normal, ask to see a copy of your lab report. On it, you should see a reference range for each particular test, along with your results.

Keep in mind that just because your test results fall into the reference range of what's considered healthy or "normal" doesn't mean that you do not have hypothyroidism. No group test can ever account for all individual differences in these lab tests, and different people will feel differently even if their test results are the same. That's why it's always important to discuss your test results with your doctor and to work toward uncovering the cause of your symptoms. If necessary, request a retest or ask that other tests be administered.

[H1]Putting it All Together

[NF]When it comes to diagnosing hypothyroidism, it's often important to perform several tests and to consider all the results before making a formal diagnosis. Although significantly elevated levels of TSH generally do indicate an under active thyroid, a

single test is sometimes not enough to determine whether you have hypothyroidism.

[E-Question]

[SBQ]**What is Wilson’s syndrome?**

[SB]Former physician E. Denis Wilson coined the term for a vague condition characterized by low body temperature and symptoms that resemble hypothyroidism. The American Thyroid Association (ATA) has dismissed the syndrome as having no scientific basis in fact and does not support the use of body temperature as a way to diagnose hypothyroidism. The condition is not to be confused with Wilson’s disease, which is a rare genetic condition involving copper metabolism.

[ESB]

Instead, your doctor needs to consider all your test results as well as the physical exam of your thyroid and your self-reported symptoms. In some cases, all the tests may come back normal, despite the presence of numerous symptoms of hypothyroidism. If that’s the case, you may need to be retested in six months. But if

the tests do detect abnormalities, you may be diagnosed with some form of hypothyroidism. Here are some possible diagnoses, based on your lab results:

[H2]Mild (Subclinical) Hypothyroidism

If you are mildly hypothyroid, you may have a normal free T3 test and a normal free T4 test. But your TSH levels may be high. See below for more discussion on this topic.

[H2]Hypothyroidism

If you have hypothyroidism as a result of a deficiency in thyroid hormone, you will probably have a normal or low free T3 test, a low free T4 test, and elevated levels of TSH.

[H2]Hashimoto’s Disease

If you test positive for anti-TPO antibodies in addition to a normal or low free T3 test, low free T4 test, and high levels of TSH, your hypothyroidism may be caused Hashimoto’s thyroiditis. You may also have an enlarged thyroid gland.

[H2]Pituitary (Central) Hypothyroidism

In rare cases, disease can affect your pituitary gland, making it unable to produce enough TSH to stimulate your thyroid gland to produce enough thyroid hormone. As a result, your TSH levels will be low or low-normal, and your free T3 and free T4 levels may be low or normal. You may also have symptoms of pituitary dysfunction, including menstrual irregularities and low libido.

[H1]The Diagnosis Debate

[NF]Exactly how many people have hypothyroidism in the U.S. is unclear. The Colorado Thyroid Disease Prevalence Study in 2000 found that as many as 13 million people may not be properly diagnosed. A diagnosis also depends on where the reference range is set and what your doctor believes. Some doctors may diagnose you with hypothyroidism if your TSH levels are even slightly elevated, while others may not unless levels become significantly high. Diagnosis then, depends in part on how hypothyroidism is defined and who is doing the defining.

To make matters even more complicated, TSH levels fluctuate and may vary with diet, medications, the time of day you have your

blood drawn, and the time of year. For instance, during colder months, TSH levels naturally rise. It may also rise when you are taking medications such as lithium or eating too many soy products, which contain isoflavones that boost TSH. In addition, TSH drops in the early part of pregnancy and rises during the latter part.

The murky nature of diagnosing hypothyroidism has sparked some controversy in endocrine circles. According to *The New York Times,* the controversy erupted in January 2004, when a panel of experts from several organizations published a report in the *Journal of the American Medical Association*.

[E-ssential]

[SB]The field of hypothyroidism is fraught with controversy over what constitutes “normal” and “abnormal,” and how patients should be treated and diagnosed. Read the news with skepticism, and consider the sources of studies. As a patient, you should focus on getting and staying well by learning the facts about thyroid health.

[ESB]

The group – made up of experts from the American Thyroid Association, the American Association of Clinical Endocrinologists and the Endocrine Society – said they found no significant scientific evidence to treat patients with mild hypothyroidism, even if these patients were experiencing symptoms. The panel recommended against screening the population for thyroid disease, but suggested that doctors be on guard with high-risk patients, such as older women.

In response, the groups that sponsored the panel vehemently disagreed and published a rebuttal in the *Journal of Clinical Endocrinology & Metabolism*. Proponents of more stringent testing have recommended lowering the upper limit of what is considered normal, so that more people who need treatment are properly diagnosed.

Still others take issue with the notion of a “normal” level of TSH. As Mary J. Shomon, a patient advocate and thyroid patient herself

said in the *Times* article, “What’s normal for me may not be normal for you. We’re patients, not lab values.”

In any case, the debate over what’s normal and what’s not is far from over. But it may explain why some people have a hard time convincing their doctors that they do have hypothyroidism, even if their blood tests show values that could be considered abnormal.

[H2]Mildly Hypothyroid

One result of this debate is the question of whether or not to treat people with mild or subclinical hypothyroidism. For patients, this situation has meant that people on the high end of the normal range provided by the laboratory – those with a TSH say of 3.0 to 5.0 mIU/dL, for instance – may not be treated for mild hypothyroidism, even in the face of uncomfortable symptoms. Some experts argue that there is no clear, compelling reason to treat these people before they develop true hypothyroidism. But other medical experts disagree and contend that treatment could help prevent the onset of hypothyroidism.

(Note: Dr. Friedman will treat a patient with a goiter and a positive anti-TPO test who has a TSH greater than 3.5 mIU/dL. He will also treat a patient who has no goiter and a negative anti-TPO test, with a TSH greater than 7.0 mIU/dL.)

If you happen to have subclinical hypothyroidism, you should discuss your options with your doctor. If you have no symptoms, you may be advised to adopt a wait-and-see approach, with more frequent testing to keep an eye on thyroid function. But if you are suffering from bothersome symptoms, you may need to explore your treatment options now. If your doctor is reluctant to treat you, you may want to consider switching to a doctor who is more apt to treat subclinical hypothyroidism.

[H1]The Importance of Treatment

[NF]You’re sick of the sluggishness, the dry brittle fingernails, and the funk that you can’t seem to escape. The good news is, treatment is relatively simple and often quite successful at eliminating your symptoms and restoring your health. Drugs that correct hypothyroidism are called thyroid replacement hormones.

Chances are, you will be on your medication for life to compensate for your natural deficiency in thyroid hormone.

Not treating hypothyroidism is simply not an option. Left untreated, hypothyroidism can cause serious complications such as high cholesterol – which can lead to heart disease -- and infertility. It can also make it unsafe for you to drive or operate any kind of heavy machinery because it can affect your driving abilities. In extreme cases, it can lead to coma or death. Because treatment is so critical to the person with an under active thyroid, we will devote the next chapter to your treatment options and how to best take these drugs safely -- and with the best results.

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