

## Testosterone/prostate cancer

“Higher levels of testosterone are associated with overall lower rates of cancer (especially prostate cancer), robust health and better quality of life.” “ Low levels of testosterone are associated with higher rates of prostate cancer.” C.Turner,M.D.

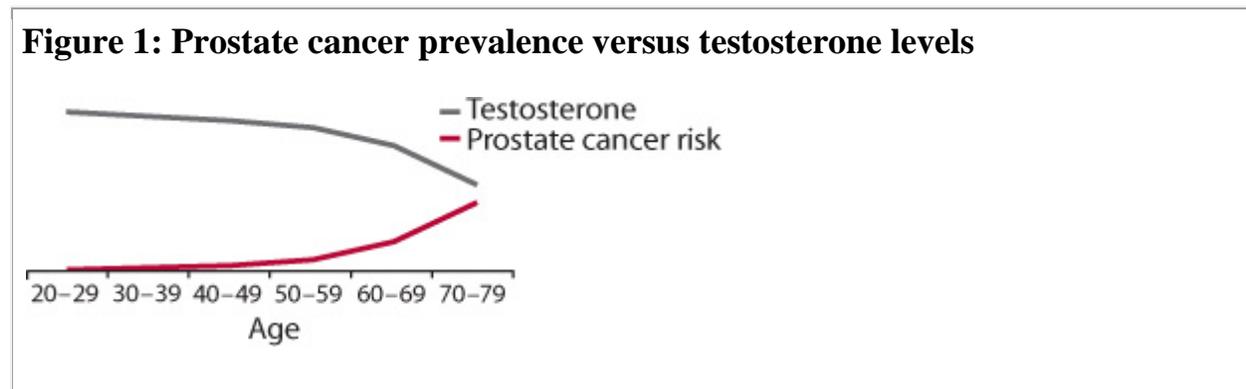
### Testosterone supplementation after [prostate cancer](#)?

Posted By [Harvard Prostate Knowledge](#) On June 19, 2009 @ 12:37 pm In [Hypogonadism](#) *Two experts examine the pros and cons of this controversial practice*

At some point in their 40s, men’s testosterone production begins to slow. By some estimates, levels of this hormone drop by about 1% a year. As men get into their 50s, 60s, and beyond, they may start to have signs and symptoms of low testosterone. These include reduced sex drive and sense of vitality, [erectile dysfunction](#), decreased energy, lower muscle mass and bone density, and anemia. When severe, these signs and symptoms characterize a condition called hypogonadism.

Researchers estimate that hypogonadism affects two to six million men in the United States. Yet it is an underdiagnosed problem, with only about 5% of those affected receiving treatment, according to the FDA. Deciding which patients should receive testosterone supplementation has proved tricky, however. For example, little consensus exists on what constitutes low testosterone. (The Endocrine Society considers a man to have low testosterone if the blood level is less than 300 ng/dl; some physicians set higher or lower benchmarks.) In addition, some men may have low blood levels of testosterone but not experience any symptoms. And few large, randomized studies on the long-term risks or benefits of testosterone supplementation have been completed.

One of the most heated debates centers on whether testosterone fuels prostate cancer. If that’s true, say some experts, then why do men develop prostate cancer when they are older, at the same time their testosterone levels are dropping? (See Figure 1.) Others point to the fact that many men with prostate cancer, especially those with advanced or metastatic cancers, take [hormone therapy](#) that nearly stops the production of testosterone to tamp down the disease. Under the influence of hormone therapy, tumors regress. So wouldn’t the opposite be true — that giving a man testosterone will accelerate or promote tumor growth?



SOURCE: Morgentaler A. Testosterone and Prostate Cancer: An Historical Perspective on a Modern Myth. *European Urology* 2006;50: 935–39. PMID: 16875775.

Abraham Morgentaler, M.D., an associate clinical professor of surgery at Harvard Medical School and the director of Men's Health Boston, specializes in treating male sexual and reproductive difficulties.\* In his book, *Testosterone for Life*, he touts the benefits of testosterone supplementation, including improved libido, mood, cognition, muscle mass, bone density, and red blood cell production. He also argues in the book, an excerpt of which follows, that some men who have had prostate cancer can take testosterone without upping their risk of cancer recurrence.

*\*Editor's note: Dr. Morgentaler has received support from companies that make testosterone therapies.*

Many well-respected experts advocate a more conservative approach: prescribing testosterone sparingly until more evidence convincingly shows a lack of harm in the long run, and until studies demonstrate which patients are most likely to reap significant benefits. One is Ian Thompson, M.D., chairman of the Department of Urology at the University of Texas Health Sciences Center at San Antonio and a principal investigator for the [Prostate Cancer Prevention Trial \(PCPT\)](#).\* He shares his views on testosterone supplementation with Harvard editors following the book excerpt.

*\*Editor's note: Dr. Thompson has received support from a company that makes drugs that affect testosterone levels in the prostate and a company that makes diagnostic tests for prostate cancer.*

### **An excerpt from *Testosterone for Life***

The oldest and most strongly held prohibition against [testosterone therapy](#) is its use in men previously diagnosed with prostate cancer. The fear has been that even in men who have been successfully treated for prostate cancer, raising testosterone levels will potentially make dormant, or sleeping, cancer cells wake up and start growing at a rapid rate. Thus, the FDA requires all testosterone products to include the warning that T [testosterone] therapy is contraindicated in men with a prior history of prostate cancer.

However, attitudes about this are changing — and changing rapidly — over just the last few years. The reasons for this are several, including the ongoing re-evaluation of the old belief that raising the concentration of testosterone is to prostate cancer like pouring gasoline on a fire or feeding a hungry tumor. In addition, there is growing recognition that T therapy can provide important benefits to a man's quality of life, so the delicate medical balancing act between potential risk and possible benefit is shifting.

A major push for consideration of T therapy in symptomatic men with a history of prostate cancer has come from the large population of men who have been treated for prostate cancer

over the last 25 years. Many of these men had small or low-grade cancers and, after treatment, were assured that they were cured and had no trace of any remaining cancer in their body. Despite having been given a clean bill of health, they were then told that they could not receive T therapy. As these prostate cancer survivors have questioned the basis for the T therapy prohibition, many physicians have been forced to reconsider whether the old arguments learned from their former teachers still make sense.

\* \* \*

A number of physicians have told me that they have treated occasional patients with testosterone despite the fact that they'd been treated for prostate cancer in the past. The first people to publish their experience with doing this were Drs. Joel Kaufman and James Graydon, whose article appeared in the *Journal of Urology* in 2004.

In this article, Drs. Kaufman and Graydon described their experience in treating seven men with T therapy some time after these men had undergone radical prostatectomy as treatment for prostate cancer, with the longest follow-up being 12 years. None of the men had developed a recurrence of his cancer. Soon afterward, there was another paper by a group from Case Western Reserve University School of Medicine describing a similar experience in 10 men with an average follow-up of approximately 19 months. Then another group from Baylor College of Medicine reported the same results in 21 men.

In all these reports, not a single man out of the 38 treated with testosterone developed a cancer recurrence. It is important to emphasize that all these reports included only men who were considered good candidates because they were at low risk of recurrence anyway. And in some cases, the duration of time the men received T therapy was relatively short. But it was reassuring that none of the 38 men who had suffered from prostate cancer in the past and who were treated for years with testosterone had developed a recurrence of prostate cancer.

This reassuring experience was bolstered by the published experience of Dr. Michael Sarosdy, who reported the results of T therapy in a group of 31 men who had received prostate cancer treatment in the form of radioactive seeds, called brachytherapy. This less-invasive form of treatment does not remove the prostate, so theoretically there is the possibility that a spot of residual cancer might still be present. With an average of five years of follow-up in these men, none of the 31 men had evidence of cancer recurrence.

The total number of men treated in these reports is still very small — much too small for anyone to be able to stand up and declare definitively, “Testosterone therapy is safe in men who have been treated for prostate cancer.” But these reports have at least given us some perspective on the degree of risk of T therapy in men treated for prostate cancer. At a minimum, it is now possible to say that there is evidence from a number of small studies that T therapy in men who have been successfully treated for prostate cancer does not appear to be associated with a substantial risk of cancer recurrence over the first several years of treatment.

\* \* \*

I'd like to make a few final points to give some perspective on this story. First, it has become obvious that raising testosterone levels in a man with a history of prostate cancer is not like pouring gasoline on a fire. In fact, with the important exception of men who have undergone hormonal treatment to bring down their T levels to castrate levels, the limited evidence suggests that raising T levels does very little to the growth of prostate cancer.

Of course, one day new studies may suggest that there is a risk. However, no such study is likely to appear for at least five to 10 years because it takes at least that long to judge whether a treatment has stimulated the growth of a cancer. Until then, we have to make decisions based on the available evidence, supported by logic and experience. For the moment, I am comfortable explaining to my patients that the use of T therapy in men with a history of prostate cancer entails an "unknown degree of risk" but that my assessment is that this degree of risk is small.

Second, it is important to recognize that even if you have low levels of testosterone as well as the symptoms of chronic fatigue, decreased libido, and erectile dysfunction, there is no certainty that raising T levels will alleviate your symptoms. There may be other reasons you are feeling this way. Moreover, there is no known benefit to T therapy if T levels are not truly low. Thus, the decision about whether to try T therapy requires balancing possible benefits with possible risks. This decision will be different for every man.

Third, T therapy is not itself a treatment for prostate cancer. Even though [one patient's] PSA dropped with T therapy, fluctuations in PSA values are common and no conclusions should be drawn from any one case.

Finally, it is important for any man with a history of prostate cancer to maintain his perspective on what is important to him. For some, it is enough to be alive and feeling reasonably well despite prostate cancer treatment. Adding a treatment that may stir up anxiety about their cancer may not be worth any benefit they may experience with regard to sex, mood, energy, or vitality. For others, the important thing is to live well. For them, an improved quality of life may be important enough to take on an unknown degree of risk, including a treatment that still lacks approval from the broader medical community.

### **Dr. Thompson's perspective on testosterone replacement**

*What concerns do you have about prescribing testosterone to men who have been successfully treated for prostate cancer?*

Obviously, testosterone supplementation has salutary effects for someone who is hypogonadal and suffering from osteoporosis, muscle loss, erectile dysfunction, and other problems. Unquestionably, otherwise healthy men given the choice of being on testosterone or being off testosterone would rather be on it. So, why not prescribe testosterone supplements to men who are hypogonadal and have been treated for prostate cancer?

Well, imagine two men with prostate cancer. The first man had a 12-core biopsy that showed cancer in just a small percentage of one core, cancer that was graded a Gleason 3 + 3. He's had several prior biopsies, all of which have been negative, and his PSA is 2.5 ng/ml, which is within

the normal range. The second man's biopsy shows cancer in every core on the right side of his prostate, graded a Gleason 5 + 4. The cancer can be felt during a digital rectal exam but is confined to the prostate capsule. Both men have undergone treatment.

The first man's risk of developing progressive prostate cancer is very, very low; his prostate cancer probably didn't even need to be treated. In his case, the risk of testosterone supplementation is low. For the second man, who has very high-risk disease, you have to ask yourself, "How would testosterone replacement affect his risk of disease recurrence?" Well, several high-quality studies have shown that men with high-risk disease who have had external beam radiation or surgery and then take androgen deprivation therapy improve their disease-free survival. And that would suggest that testosterone supplementation would increase his risk of disease recurrence.

How does that happen? Testosterone could reactivate existing disease. Or, if the patient had external beam radiation, not all of the tissue becomes fibrotic. Some normal epithelium, the cell layer that lines the prostate, will persist, and that normal epithelium is at risk of becoming cancerous.

*So you wouldn't prescribe testosterone to a patient who's had prostate cancer unless his case was like that of the first patient you described?*

My point is that we can't make broad, generalized statements. Just because we don't know if it's harmful, we can't presume that it's safe. For the man with very low risk of disease recurrence who is experiencing serious symptoms of hypogonadism, it's probably okay. But symptoms like "I'm not as lively and strong as I was at 18" aren't really sufficient to justify supplemental testosterone. If you apply that standard, every older man would be clinically hypogonadal.

Also, let's take a look at testosterone levels. Some people say that the threshold for low testosterone is below 250 ng/dl, but other people use different numbers. Where did those numbers come from?

And what else is going on in the body? There are differences from one person to the next in how testosterone is used. And the interactions of other androgens and the androgen receptors are so variable. What other medical tests have a "normal" range as large as 250 ng/dl to 1,250 ng/dl? And then there's the fact that the variation in test results from one lab to the next is enormous. That's why I'm unconvinced that there is a blood test you can do to unequivocally label someone as biochemically hypogonadal.

*Do you have patients who are on testosterone therapy?*

I don't have very many patients on androgen replacement. If I think someone might need it, I refer him to an endocrinologist who will manage his condition. Managing hypogonadism is a very complicated matter. In fact, an endocrinologist who specializes in hypogonadism often will obtain a blood sample every half hour for two hours, pool them, and then run a testosterone level. A one-time reading isn't sufficient.

Yes, there will be some clear-cut cases on both sides — the man at very low risk of prostate cancer who won't die of the disease even if it develops, and the man who has had prostate cancer and has a very high risk of recurrence. But what about the man in the middle? Again, just because we haven't proven testosterone supplementation harmful doesn't mean we should prescribe it.

*So what's your biggest concern?*

My biggest concern is that, with very little data, we are *assuming* that androgen replacement is safe. We know that the studies necessary to answer this question will require thousands of patients; they haven't even begun. We only have to look at history — hormone replacement in women — to see the error of *assuming* that hormone replacement is safe and effective. We're living in the era of evidence-based medicine; that we accept current data and then potentially harm our patients just doesn't seem reasonable today.

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## Vindication

By William Faloon



When we first recommended that aging men restore their testosterone to youthful levels, a firestorm of criticism erupted.

The medical establishment proclaimed that by interfering with the natural decline in testosterone secretion, that men risked all kinds of terrible fates. When Life Extension members asked their doctors for testosterone prescriptions, they ran into objections such as, “*I don't prescribe steroids,*” “*testosterone causes heart attacks,*” and “*testosterone causes prostate*

*cancer.*”



William Faloon

We countered these criticisms with hundreds of scientific citations showing that testosterone deficiency is an underlying cause of age-related disease. We also demonstrated that none of the paranoid fears about natural testosterone had ever been substantiated.

To this day, a huge number of doctors view testosterone as if it were a narcotic. Other physicians admit they don't know how to prescribe testosterone to their patients. All of that is about to change.

## Harvard Medical School

A new book authored by the “**experts at Harvard Medical School**” should bury once and for all the biased and ignorant misconceptions about natural testosterone restoration therapy.

*Testosterone for Life* (McGraw-Hill; 2008) is an exceptionally well-written book that validates what we long ago published about the safety, testing, method of delivery, and multiple benefits of testosterone.

While this information has been widely circulated in the [anti-aging](#) community, the fact that it has been so eloquently compiled by the “**experts at Harvard Medical School**” should forever dispel the myths that have misled mainstream doctors for decades.

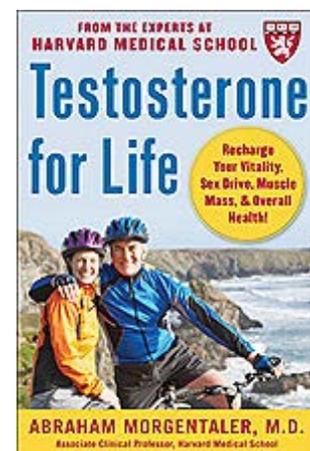
Testosterone for Life reminds the reader of what the medical community erroneously thought, and then presents the scientific truths in such a way that it is difficult to imagine anyone regurgitating these fallacies again. The author freely admits his own mistaken beliefs about testosterone that were based on the medical establishment's flawed dogma, and then describes how he uncovered the real facts.

## Low Testosterone Increases Prostate Cancer Risk

Fear of prostate cancer is the leading reason why aging men have shied away from restoring their free testosterone to youthful ranges. To dispel this concern, Life Extension long ago analyzed every published study and found there is no basis for asserting that testosterone causes prostate cancer. 1-6

Our observations from the thousands of blood tests we perform each year for members confirmed this. What we found is that men with low testosterone appear to be more likely to contract prostate cancer.

In *Testosterone for Life*, the misleading notion about testosterone causing prostate cancer is exposed in better detail than I have ever seen. You don't have to buy the book to read this information. The publisher allowed us to excerpt the entire chapter that you can read in this month's issue. "[Destroying the Myth About Testosterone Replacement and Prostate Cancer.](#)"



What will come as a bombshell to the medical establishment is the compilation of scientific facts presented in this chapter showing that men with low [testosterone levels](#) have an increased percentage of prostate cancer-positive biopsies.<sup>4,7,8</sup> This means that physicians who refused to prescribe testosterone to their aging male patients may have unwittingly contributed to today's prostate cancer epidemic.

## **Testosterone May Safely Be Used in Those Who Have Had Prostate Cancer**

Another revealing chapter in *Testosterone for Life* exposes the erroneous belief that men who have ever had prostate cancer, or are at high risk for prostate cancer, can never use testosterone.<sup>9</sup>

The prevailing dogma is that raising the concentration of testosterone is to prostate cancer like *pouring gasoline onto a fire*. While there are certain [stages of prostate cancer](#) where this can happen, it turns out that prostate cancer cells can thrive on relatively low concentrations of testosterone.<sup>4,7</sup> That is why when testosterone deprivation is properly prescribed as a treatment for existing prostate cancer, the objective is to reduce testosterone to very low levels (less than 20 ng/dL of blood). That often means shutting down testosterone production from both the testes and the adrenal glands.

Life Extension still cautions that most men with prostate cancer should avoid [testosterone therapy](#) until the disease is completely eradicated. Any man (*whether or not he has ever had prostate cancer*) who initiates testosterone therapy and then experiences an increase in PSA should discontinue testosterone and undergo diagnostic tests to assess if prostate cancer is present. Testosterone is a stress test for latent prostate cancer and if the PSA rises in response to testosterone replacement therapy, then prostate cancer has been identified and testosterone should be stopped.

*Testosterone for Life* cites published studies and case reports of men with existing prostate cancer who restored their testosterone levels and experienced a reduction in clinical markers and symptoms of their disease. While we at *Life Extension* believe that most men with active prostate cancers should not increase their testosterone levels until their disease is brought under control, the information presented in this new book calls into question some of our previous concerns.

The major emphasis in the chapter "*Treating Men Who Have a History of Prostate Cancer*" is that once prostate cancer is believed to be cured, there is no reason for an aging man to suffer from a testosterone deficiency. This chapter, perhaps more than any other in this book, will turn conventional assumptions about testosterone and prostate cancer upside down.

I suggest that anyone who has had prostate cancer and now wants to restore their testosterone levels should read this chapter in *Testosterone for Life*. We were not able to excerpt this chapter, so one should obtain the book in order to read it.

## SYMPTOMS OF LOW TESTOSTERONE

*Testosterone for Life* heavily emphasizes the **quality-of-life improvements** that occur in most men who restore their testosterone to youthful ranges. Common symptoms described in men with low testosterone are:

- Sexual problems such as decreased desire, erectile dysfunction, difficulty achieving orgasm, and reduced intensity of orgasm
- Low energy and increased fatigue
- Loss of motivation
- Depressed mood
- Loss of sense of well-being and vigor.

In case after case, when low testosterone is corrected, men report improvements in some or all of the above symptoms. It is interesting to note that these symptoms of low testosterone are analogous to what one would expect with normal aging.

### A Generation Who Lost Their Quality of Life

*Testosterone for Life* discusses the many published studies showing that men with higher testosterone levels live longer and have lower rates of diabetes and heart attacks.

The emphasis of the book, however, is on the enormous **quality-of-life improvements** observed in men prescribed testosterone. These improvements include increased sexual desire, performance, and fulfillment, along with marked enhancements in energy and sense of well-being. These remarkable case histories, presented in meticulous detail, should ignite a stampede of aging men seeking to have their doctors prescribe them testosterone creams.

While *Testosterone for Life* relates many histories of men suffering common age-related afflictions who then regain their youthful vigor, the author dutifully discusses why some men do not respond to testosterone, such as being prescribed drugs that destroy libido and erection capability.

When reading *Testosterone for Life*, one cannot help but sympathize about an entire generation of aging men robbed of their youth because the medical establishment, federal government, and the media ignored scientific reality. We should also remember the anti-aging doctors who were persecuted and sometimes imprisoned for prescribing testosterone to their patients. The only crime these doctors committed was being ahead of their time.

## SIGNS OF LOW TESTOSTERONE

“Symptoms” are something a person experiences, whereas “signs” are something that can be measured, like weight or blood pressure. *Testosterone for Life* describes common signs of low testosterone such as:

- Loss of muscle mass and strength
- Accumulation of belly fat
- Low bone density
- Anemia
- Increased incidence of type 2 diabetes.

These signs of low testosterone are common characteristics of normal aging. *Testosterone for Life* confirms how most men demonstrate improvements in these pathologic signs when testosterone levels are restored.

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### [Testosterone and prostate cancer](#)

Dec 16th, 2011 | Posted by [Dr. Eric Honing](#) | Filed under [prostate cancer](#), [testosterone replacement therapy](#)

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Most patients are told by their doctor that high testosterone is risky for [prostate cancer](#). And it was taboo to treat a patient with prostate cancer with testosterone since it was similar to “pouring fuel on a fire”. The New England Journal of Medicine performed an extensive review and found no evidence that men with higher testosterone were at increased risk of prostate cancer.

Dr Morgentaler who is a Harvard [urologist](#) has performed research with his colleagues to unravel the myth of testosterone and prostate cancer. In a large series of prostate biopsies in men with low testosterone, they identified prostate cancer in 15% of men with a “normal” PSA.

Furthermore, the risk was doubled for men with the lowest testosterone compared with men with mildly low testosterone.

In another study done in Italy, the data showed that men with low testosterone were associated with more aggressive prostate cancer. There has been small published data showing no prostate recurrence in men who received [testosterone therapy](#) after having been treated for prostate cancer.

Dr Morgentaler followed a small group of men with prostate cancer who chose to have no treatment of their cancers but rather to follow it closely. In these men, they were treated with testosterone and underwent prostate biopsies. None of these men showed any cancer progression and in 54% of the follow up biopsies they were unable to find any cancer.

There is model to explain how testosterone interacts with prostate cancer. It is called

the Saturation Model. Basically, the prostate cancer is sensitive to very low levels of testosterone and short of castration men do not get this low. An analogy is comparing prostate cancer to a house plant. The plant requires adequate amounts of water to grow but it will not grow to the size of a large tree no matter how much water you give it.

The evidence is accumulating that it is important for men to have optimum testosterone levels to have good health and quality of life. It is starting to appear that maintaining optimal levels of testosterone may reduce the chances of developing a worrisome prostate cancer.

However, one must remember that some men will experience cancer recurrence irregardless of whether they were treated with testosterone or not. Many people will be quick to point the finger at testosterone as being the culprit for the recurrence. So men with prostate cancer need to take into consideration all the factors in making a decision on whether to take testosterone or not. But in all aspects of what we do in life we are constantly weighing the pros and the cons. This is no different.

Tags: [BHRT Phoenix](#), [prostate cancer](#), [Testosterone replacement therapy](#)

## **[The importance of iron to your thyroid](#)**

Nov 12th, 2011 | Posted by [Dr. Eric Honing](#) | Filed under [Adrenal Fatigue](#), [fatigue](#), [thyroid hormone](#)

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I see a lot of patients with thyroid conditions. While it is extremely important to evaluate all hormones especially the adrenals, it is also very important to evaluate iron status in the body. Most of my patients that come to see me with a thyroid condition have never had their iron levels evaluated. The most important iron blood test to get is your ferritin level. Ferritin is how your iron is stored in your body. It let's us know how much iron you have "left in the tank". You can have normal circulating iron levels in the blood but a low ferritin which can be problematic.

Iron is needed in the production of your thyroid hormones. The enzyme in your thyroid gland called "thyroid peroxidase" is dependent on iron for it to work. This enzyme basically takes iodine and adds it to the amino acid "tyrosine" to make your thyroid hormones.

There is another important enzyme in your body called "deiodinase" which converts the inactive thyroid hormone T4 to the active hormone T3. The deiodinase enzyme is dependent on iron as well.

As mentioned above the adrenal system play a very important role in how your thyroid hormone functions in your body. Iron also plays an important role in the synthesis of cortisol in the adrenal cortex. So if you have low iron levels you can not make enough cortisol which can lead to the thyoid hormones not getting into the cells effectively as well as adrenal fatigue.

So make sure you ask to get your Ferritin levels checked with your next blood test.

