Part 4, Chapter 40: Caffeine and Cortisol

Caffeine, in the United States at least, is a sacred cow. It's also an addiction that's tough to break. As such I'm nicknaming this section "Breaking the Caffeine Addiction and Killing the Sacred Cow". According to Dr. Bragg:

> Coffee drinking (caffeine) is the number 1 drug addiction in America! Millions of pounds of coffee are sold to America yearly. That's not to mention the caffeine in soft drinks. Plus there's millions of addicted chocoholics who are hooked on chocolate and sugar—a harmful combination. The shocking list of caffeine-related side effects include: High blood pressure, hypertension, arrhythmia, elevated cholesterol, … increased tendencies to allergies, chronic fatigue and autoimmune disorders … [to name a few of the side effects].{1}

I wouldn't call caffeine your friend. Without a doubt, caffeine is one of the hardest addictions there is to break. In part I'm sure this is due to the fact that caffeine is a natural substance in a number of foods—coffee and chocolate to name two. It has also been distilled into pill form and is available in numerous over the counter forms as a drug.

It's a given that stress can trigger appetite even when one is not hungry. A hormone that is triggered when stressed is cortisol. Caffeine indirectly causes cortisol to be triggered artificially. Cortisol is strongly related to adrenal function. According to Dr. James L. Wilson:

> Cortisol is a life sustaining adrenal hormone essential to the maintenance of homeostasis. Called "the stress hormone," cortisol influences, regulates or modulates many of the changes that occur in the body in response to stress including, but not limited to:
>
> - Blood sugar (glucose) levels
> - Fat, protein and carbohydrate metabolism to maintain blood glucose (gluconeogenesis)
> - Immune responses
> - Anti-inflammatory actions
> - Blood pressure
> - Heart and blood vessel tone and contraction
> - Central nervous system activation{2}

Suffice it to say that it's not a simple process. Cortisol is extremely important to our survival. Among its many functions is that it facilitates us waking up in the morning when it's secreted and helps us to sleep at night when it's suppressed. Unfortunately, it can also be a two-edged sword.

One of the notable side effects is that it can also cause weight gain and, indirectly, fatigue. More on this shortly.

> Whether or not stress causes high levels of cortisol and weight gain is not clear. Since the role of cortisol during stress is to provide energy for the body, the result can be an increase in appetite. So, stress may lead to cortisol levels that trigger

> one to eat, which can cause weight gain, difficulty losing weight, or weight gain in certain areas of the body (scientists have learned that elevated cortisol levels tend to cause fat deposition in the abdominal area [sometimes called the beer belly syndrome]).{3}

Now comes the sacred cow part: Coffee, caffeine and cortisol.

> According to a study published in 2005 in "Psychosomatic Medicine," caffeine can increase cortisol levels in stressed individuals. The researchers set out to determine the effect of regular caffeine consumption on cortisol levels. The results of the study showed that after a five-day abstinence, reintroducing dietary caffeine caused a significant increase in cortisol levels. However, the overall cortisol response was significantly reduced after five days of caffeine consumption. The authors of the study concluded that the cortisol responses to caffeine can be diminished, but not eliminated, when caffeine is consumed daily.{4}

What this essentially means is that **the constant daily infusion of caffeine into the body disrupts your body's ability to react to cortisol**. The adrenal glands can be so overworked because of the caffeine that your body trying to 'wake you up' with cortisol has almost no effect. While caffeine does provide a temporary boost in energy, the long term effect is that it actually leads to chronic fatigue. As with so many nutritional issues, when it comes to caffeine and its effect on the body, the devil is in the details.

There is a substance called adenosine which is created in the brain.

As adenosine is created in the brain, it binds to adenosine receptors. This binding causes drowsiness by slowing down nerve cell activity. In the brain, this also causes blood vessels to dilate, most likely to let more oxygen into that organ during sleep. To a nerve cell, caffeine looks like adenosine: Caffeine binds to the adenosine receptor. However, caffeine doesn't slow down the cell's activity like adenosine would. As a result, the cell can no longer identify adenosine because caffeine is taking up all the receptors that adenosine would normally bind to. Instead of slowing down because of the adenosine's effect, the nerve cells speed up. Caffeine also causes the brain's blood vessels to constrict, because it blocks adenosine's ability to open them up. This effect is why some headache medicines like Anacin [and Excedrin] contain caffeine—constricting blood vessels in the brain can help stop a vascular headache.

Caffeine's effect on the brain causes increased neuron firing. The pituitary gland senses this activity and thinks some sort of emergency must be occurring, so it releases hormones that tell the adrenal glands to produce adrenaline (epinephrine). Adrenaline is the "fight or flight" hormone, and it has a number of effects on your body.{5}

The net effect is that caffeine ultimately triggers a fight or flight reaction. Your body thinks it's being chased by a tiger or something and you go into high alert status. One of processes that happens is that the liver releases sugar into the blood stream for extra energy. It's rather like gorging on candy bars. As any one who has ever overdosed on caffeine can tell you, too much caffeine will make you as wired as a cat on a hot tin roof.

Caffeine comes in many forms. There's the ever popular black coffee, soft drinks and, the bane of mostly the young, these so-called energy drinks, which is tantamount to stealing from Paul to pay Peter. There is also the pure form such as in Vivarin or No Doze. As touted by the company:

> Vivarin provides mental energy that helps you power your day. It's safe, has about as much caffeine as a cup of coffee—but costs less than a quarter per tablet. So if you're tired of coffee and those strange ingredients in expensive energy drinks, revive with Vivarin!{6}

Many years ago when I worked in the grocery industry, on the night shift, there was a bottle of Vivarin by the time clock. Everyone started the shift with a 'hit', one, sometimes

two, tablets. It got your juices going, so to speak. Within a few minutes everyone was humming along at rock star speed.

There was a new guy on the crew. He had this bright idea that if one caffeine pill was good, two would be better. If two were better, how about three, or four. In less than an hour he consumed 7-8 caffeine pills. To make a long story short, his body released so much sugar, and then insulin to try to counteract it, that he almost went into insulin shock, a condition that potentially only happens in diabetics. At the same time his blood sugar dropped so low that outside of the assistance of the paramedics he very likely could have died. At the same time, he was paranoid, almost psychotic, and trying to climb up the walls.

This is an extreme example, of course, but it does demonstrate that caffeine is not a benign substance. I discovered once that after consuming one of these eight hour energy drinks at work at noon that I was so wired that it wasn't until early the next morning that I could get to sleep, and that leads me to the down side of caffeine.

I love this picture. It says it all. The title of the article is "Caffeine: Does It Really Give You Energy?"{8} The truth is:

> Caffeine is a highly addictive substance, and many of us crave and consume it in large amounts. … the problem with caffeine is that the energy it gives us is short-lived. We've all experienced the up-and-down energy swings that are associated with regular coffee drinking. Each high is followed by a low, and (if we're not careful) each low prompts us to ingest more of that same stimulant.{9}


{7}

My friend in the grocery store discovered this to an extreme.

The fact is that constant stimulation with caffeine ultimately weakens the adrenal glands. Over time constantly stressing the adrenal glands, and again it ultimately all goes back to the excess secretion of cortisol, causes one to become fatigued pretty much 24-7. It's a vicious catch twenty-two. As this article notes:

> In a 2005 study, researchers gave three groups of subjects a 0 mg, 300 mg or 600 mg dose of caffeine each day for 5 days. Then on the sixth day they gave each subject a morning and afternoon dose, and measured their body's cortisol response. The results? Those who had been abstaining from caffeine saw large spikes in cortisol on the sixth day. On the other hand, those who had been ingesting caffeine each day saw no cortisol response at all in the morning of the sixth day, and only a reduced response in the afternoon.{10}

The net effect is that, over time, one, your body (and more specifically your brain) requires caffeine to feel normal and, two, your adrenal glands start malfunctioning. There's just no more energy to be had because all your body systems have become exhausted from constantly being assaulted with various poisons.

One of cortisol's many functions is to provide a massive energy burst in a crisis. The constant abuse of caffeine, in whatever form, so disrupts the body that it is hard for it to produce energy at all. Complicating the problem is that many people living on a Standard American Diet are also consuming huge quantities of processed refined sugar, trans fat, and other substances poisonous to the body. It's small wonder that so many people have barely enough vital life-force energy to function. As Dr. Bragg would point out, it is also very likely that this individual is suffering from a severe potassium deficiency, leading to

feeling exhausted.[11]

This article also provides a list of indicators for adrenal fatigue, the ultimate consequence of caffeine and other drug abuses of choice. It's a list worth repeating here as the long term consequences of caffeine addiction can, indeed, be quite serious.

- Difficulty getting up each morning, even after a long sleep
- High levels of fatigue each day
- Inability to handle stress
- Cravings for salty foods
- Higher energy levels in the evenings
- Overuse of stimulants like sugar and caffeine
- A weakened immune system

[The list continues with] 17 more symptoms of adrenal fatigue.

- Anxiety
- Asthma, allergies or respiratory complaints
- Dark circles under the eyes
- Dizziness
- Depression
- Dry skin
- Extreme tiredness an hour after exercise
- Frequent urination
- Insomnia
- Joint pain
- Lines in your fingertips
- Loss of muscle tone
- Low blood pressure
- Low blood sugar
- Low sex drive
- Lower back pain
- Numbness in your fingers and poor circulation
- Weight gain[12]

I find it interesting that many of the symptoms of adrenal fatigue are also the same symptoms as with a serious potassium deficiency. The bottom line is to stop poisoning your body with this stuff—and don't forget a generous dose of Bragg's apple cider vinegar to provide much needed potassium. Still, be aware that getting over being addicted to caffeine, killing the sacred cow so to speak, is not easy. While getting 'off' of caffeine is a relatively short term process (if not a rather unpleasant one), it's staying off it long term that is hard. It takes a long time for body to recover from the long term damage that this substance does to the point where you feel 'normal' without it. Heavily nutrifying your body and Bragg's apple cider vinegar are critical to the recovery process. In reality, feeling normal again requires virtually a total reset of your metabolism. This is ultimately what happens on the program discussed in this book though, for caffeine addiction, the process of totally purging its effects from you body can take ***many*** months.