

[IMAGE]

Kick the Caffeine Habit

By Peter Bills

Tossing and turning through another sleepless night? Caffeine could be the culprit. Relying on medications to fall asleep and using caffeine to stay awake during the day can throw off your body's natural rhythm. Find out what your caffeine habit is doing to your body.

On any given night, millions of Americans have trouble sleeping. On any given afternoon, millions of Americans struggle to stay alert. It's no wonder that more than 48 million sleep-aid prescriptions were written in 2006, nor is it any wonder that caffeine has become the second-largest commodity in dollar amounts (behind oil) traded in the world.

The population is increasingly reaching for medications and stimulants to battle its sleep problems, and often simultaneously - pharmaceuticals for the insomnia and caffeine for the daytime fatigue. Unfortunately, neither solution can replace the recuperative and restorative powers of natural sleep. Both can alter nature's elaborate sleep architecture, the quality and the optimum proportion of deep and light sleep, and the amount of REM, or dream sleep.

What Causes Insomnia?

Steaming cup of coffee. - Copyright â Stock Photo / Register Mark Insomnia is a self-reported condition - a complaint about the inability to fall asleep or stay asleep, or about waking unrefreshed and experiencing excessive daytime fatigue. According to the National Institutes of Health, 30 percent to 40 percent of adults report some symptoms of insomnia within a given year; 10 percent to 15 percent report that it is a chronic condition. In some instances, insomnia is primary, or not directly associated with any other health issue. For others, the insomnia is secondary, a symptom of another health issue or a byproduct of another medical condition (or of the medications used to treat that condition). In most of these cases, the sleep problem can be managed, once the root cause is identified. The same can be said for the 90 or so clearly identified and defined sleep disorders, such as obstructive sleep apnea or restless legs syndrome.

Average Caffeine Levels for Popular Beverages and Foods	
Coffee	Caffeine (mg)
<i>Coffee, grande (16 oz.), Starbucks</i>	320
<i>Coffee, tall (12 oz.), Starbucks</i>	260
<i>Coffee, short (8 oz.), Starbucks</i>	180
<i>Caffe Latte, short (8 oz.) or tall (12 oz.), Starbucks</i>	75
<i>Coffee, non-gourmet (8 oz.)</i>	135**
<i>Espresso (1 oz.), Starbucks</i>	75
<i>Maxwell House (8 oz.)</i>	110
<i>Coffee, instant (8 oz.)</i>	95**
<i>Coffee, decaf, grande (16 oz.), Starbucks</i>	25
Soft Drink	Caffeine (mg)
<i>Cola (16 oz.)</i>	50**
<i>Cola (12 oz.)</i>	35**
<i>Mountain Dew (12 oz.)</i>	55
Other	Caffeine (mg)
<i>Tea, green or instant (8 oz.)</i>	30**
<i>Tea, leaf or bag (8 oz.)</i>	50
<i>Water, caffeinated (Edge2O) (8 oz.)</i>	70
<i>Chocolate milk (1 oz.)</i>	5**
<i>Cocoa or hot chocolate (8 oz.)</i>	5**
<i>Chocolate, dark, bittersweet, semi-sweet (1 oz.)</i>	20**
** = typical value	

For millions, however, insomnia is "self-inflicted." It is simply the result of poor lifestyle choices - violations of the conditions and practices that promote quality sleep, collectively known as sleep hygiene. Proper sleep hygiene allows the powerful mechanisms that regulate the human sleep-wake cycle to function as designed. Obviously, high noise levels, bright lights and excessive temperatures are conditions that interfere with sleep. Less obvious are the influences diet and exercise exert on sleep patterns. One of particular magnitude is caffeine intake.

The Dangers of Caffeine

In addition to coffee, tea and cola, caffeine can be found in energy drinks, over-the-counter pain medicines and chocolate. In moderation, caffeine can be tolerated and can contribute to a healthy lifestyle. In excess, especially late in the day, it can substantially alter sleep quality by interfering with a key component of sleep: the homeostatic process.

Sleep homeostasis is the process by which the body establishes a steady state of physiological balance and readiness. From the moment of morning wakefulness, the homeostatic drive for sleep accumulates until it reaches its maximum late in the evening, establishing enough pressure to sustain about eight continuous hours of slumber. Although the exact neurological mechanisms aren't fully understood, sleep most likely involves the nucleoside adenosine. Adenosine binds to receptors in the basal forebrain that control the cells that are essential for wakefulness, and turns them off, triggering sleep. Levels of adenosine rise continuously during the day as cells break down ATP (adenosine triphosphate) to generate energy. While awake and active, the body burns ATP and thus, adenosine levels rise, creating the pressure for sleep. During sleep, there is a marked decrease in cellular activity.

Tipped perscription pill bottle that has coffee beans spilling out. - Copyright â Stock Photo / Register Mark

Caffeine molecules are similar in structure to adenosine and bind to the same receptors that signal the pressure for sleep, thus blocking the homeostatic sleep drive. Masking tiredness is a signature feature of caffeine. Caffeine also prevents adenosine from dilating the brain's blood vessels (theoretically, to increase oxygen efficiency during sleep). That's why caffeine is found in many over-the-counter headache pain medications, such as Anacin. If a headache is vascular in nature, caffeine helps relieve the pain by narrowing the blood vessels.

All of this activity caused by the caffeine also triggers the body to release epinephrine (adrenaline), another anti-sleep chemical. Adrenaline, among other things, increases the heart rate and blood pressure, dilates the pupils, increases blood sugar levels, and increases the blood supply to the large muscle groups in the body.

Average Caffeine Levels for Popular Energy Drinks

Energy Drink	Caffeine (mg)
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<i>Spike Shooter (8.4 oz.)</i>	300
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<i>Cocaine (8.4 oz.)</i>	280
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<i>Monster Energy (16 oz.)</i>	160
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<i>Full Throttle (16 oz.)</i>	145
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<i>SoBe No Fear (8 oz.)</i>	85
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<i>Red Bull (8.3 oz)</i>	80
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<i>Amp (8.4 oz.)</i>	75
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Energy drink can. - Copyright © Stock Photo / Register Mark

Restrict Your Caffeine Intake

Moderate amounts of caffeine ingested in the morning are sufficiently metabolized by bedtime - they won't have a major impact on sleep. However, caffeine has a half-life of four to seven hours, which means substantial amounts of caffeine consumed later in the day will linger in the body well past the evening. For example, a well-known chain of coffee shops has a large-sized coffee product that contains more than 500 mg of caffeine (roughly five times that of an average cup of drip coffee). If you were to drink that as a "pick-me-up" at 3 p.m. to "get through the day," half of the caffeine could still be in the body at bedtime. In other words, a 10 p.m. bedtime could be challenged by the caffeine equivalent of two full cups of coffee! One might be tired enough to fall asleep, but the caffeine tampers with the quality and depth of the sleep, damaging sleep's valuable restorative powers.

Simply restricting caffeine intake after the noon hour could have dramatic effects on the ability to fall asleep at night and the ensuing quality of one's sleep. It also may negate or reduce the need for sleep aids. Nature wins, and so does the sleeper!

Talk to your doctor about any sleep-quality issues or sleep difficulties you may be experiencing. Your doctor can help pinpoint areas of concern and develop lifestyle habits that can keep you rested and rejuvenated for all life has in store for you.

Average Caffeine Levels for Popular Over-the-Counter Drugs

Medication	Caffeine (mg)	<u>Bottle of perscription pills. - Copyright â Stock Photo / Register</u> <u>Mark</u>
<i>NoDoz, maximum strength</i> (1), <i>or Vivarin (1)</i>	200	
<i>NoDoz, regular strength (1)</i>	100	
<i>Excedrin, extra strength (2)</i>	130	
<i>Anacin, maximum strength (2)</i>	65	

For more information on caffeine content,
visit the Center for Science in the Public
Interest (www.cspinet.org).

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