CHAPTER ONE

America: A Sleep-Deprived Nation
Sara doesn’t sleep well at night, and she hasn’t for years. Over a cup of coffee she confides in me that it takes hours for her to fall asleep, only to wake up several times in the course of the night, staring at the alarm clock, wishing it were morning. Sara is not alone in her quest for a good night’s sleep. She has joined the ranks of millions of restless Americans who claim a similar disturbance in what should be a most pleasurable experience; one that we spend one-third of our lives engaged in. The rebound effect of poor quality sleep reveals itself in the normal waking hours through poor work productivity, irritability, anxiety, poor communication skills, slow reaction time when driving, questionable parenting skills and several behaviors that are less than becoming of one’s optimal potential. America’s dependence on coffee is as much a symptom as a possible cause of the problem.

America is a sleep-deprived nation! According to a recent survey by the National Sleep Foundation, over 60% of Americans suffer from poor sleep quality resulting in everything from falling asleep on the job and absenteeism to marital problems, chronic health issues and car accidents. Moreover, our growing obsession with screen-held devices now plays a leading role in this as well; the newest science reveals that both screen light and WiFi microwaves affect our biological clocks, and not in a good way.

A quick check of the nation’s pulse reveals that insomnia, in all its many forms, has become one more aspect on a growing list of national health epidemics. Moreover, insomnia is now linked to many chronic diseases, from coronary heart disease to cancer. The newest evidence links insomnia to obesity. The lack of a good night’s sleep, as a common health issue, is made quite evident with the proliferation of pharmaceutical television ads promising an insomnia cure to the newest health epidemic of the high-tech age. It’s no secret that sleep medications are among those at the top of the list for prescriptions in the U.S.

Perhaps most troublesome is the dramatic incidence of insomnia reported in middle school and high school students whose brains are still developing. For adults and children alike, a succession of restless nights becomes a battle of thought processes between the conscious mind’s inability to turn off, and the unconscious mind’s inability to communicate essential information through dreams. The end result is that both sides claim casualties, and neither side is victorious. America, as a sleep-deprived nation, also gives a whole new meaning to the expression “the coming zombie apocalypse.” Many would say it’s already here.

In our rapidly changing world where it is typical for the average person to become allured by the bombardment of screen time sensory stimulation, it has become quite common for people to shave off precious time on either
end of one’s allocated nocturnal sleep allotment. The end result is that we
sacrifice our long-term health for short-term pleasure. Oddly enough, many
of the Millennial Generation and Generation X’ers feel that sleep is a form
of surrender; surrender in avoiding responsibilities, surrender to curiosity
(Internet surfing) or merely surrender to exhaustion. By and large, people hate
to give in to surrender, as it conveys a sense of weakness. For some, (perhaps
many) people who see hyper-productivity as a badge of honor, eight hours
of sleep is perceived as a weakness compared to the now common four or
five hours. Ironically, the lack of consistently good sleep habits can become a
serious lifelong weakness where one’s personal health is the biggest casualty.
Simply stated, for those who hold fast to today’s 24/7 behaviors that negate a
good night’s sleep, prolonged health and wellness are inadvertently sabotaged.
Many compromise a good night’s sleep for a mediocre day at the office, all the
while searching for happiness. What’s the answer? To paraphrase a famous
quote: “Sleep is bliss, follow your bliss.”

Americans may be sleep deprived, but it doesn’t have to be this way. There are
simple solutions and positive behaviors that can bring healthy sleep habits back into
balance. To begin with, a solid awareness of the problem is the first step to resolving
it. The bottom line is this: Quality sleep is essential to your optimal health.

Insomnia Defined
Insomnia is a term used to define the inability to get a good night’s sleep.
Recently, it has become a catch-all phrase to describe a multitude of sleep-
related problems. So pervasive is insomnia, some physicians now call it a
“Wakefulness Disorder.” Neither a disease nor a syndrome, insomnia can
best be defined as a symptom of other health related issues, from sleep apnea
(irregular breathing), depression, chronic pain and acid reflux to emotional
stress. Insomnia is often characterized as the inability to fall asleep, stay asleep
or repeatedly waking up. The disruption of “sound sleep” is often suggestive of
other health concerns or issues (e.g., menopause, side effects of prescriptions,
or psychological problems such as stress, anxiety, or depression).

The Purpose of Sleep
In any given day there are 24 hours. In an ideal world (no matter where you
live on the planet), eight of these hours each day are deemed necessary for
sleep, so that one can function optimally during the remaining 16 hours.
When you do the math, the numbers don’t lie. We spend about one-third of
our lives sleeping. Given this amount of time, one might conclude that quality
sleep is not only important, but essential to one’s health and well-being. This
is true. Death and taxes may be a certainty in life, but to this list we can add
sleep, for without adequate sleep, the waking hours can be a living hell.
It is interesting to note that back in the early '70s several DJ’s across the country would seek a greater share of their potential target audience by pulling on-air publicity stunts. One such promotional gimmick included staying on the air for days on end with barely more than a few bathroom breaks. In what sounds like one more urban legend tall tale, each DJ who tried this foolish challenge began to show signs of psychosis within 36-48 hours of sleep deprivation. In essence, without adequate sleep, they became totally incoherent and unable to perform their job. This practice of marathon DJ’ing abruptly stopped when the end result proved to be embarrassing, if not disastrous for the listening public. Remarkably, each sleep-deprived DJ recovered fully once sleep was reintroduced into their routine. Identical psychotic behavior was also observed with the finalists of marathon dances and promotional free car giveaway contests (remember the advertising phrase: “Put your hands on a Toyota and never let go?”). From this absurd data collection of case studies, it was concluded that not only is sleep each night important, but essential to our mental and physical health. Least we forget that to this day, sleep deprivation is a form of torture in many countries around the world.

The Study of Sleep

The subject of sleep as a topic of scientific investigation began, in earnest, about 50 years ago, after World War II. For most of this period scientists were at a loss to explain the exact importance of sleep, other than in general terms; rest and rejuvenation. It was also at this time that rapid eye movement (REM) was first fully noted, but not clearly understood. Interestingly, most of the sleep research centered on what happens to us mentally and physically when we don’t sleep.

Why do we need to sleep? Rest and rejuvenation may seem like the most intuitive (and obvious) answers, but the mind-body-spirit dynamic is far more complex than this. Anyone who ever tried to pull an all-nighter in college quickly realized that the attempted gains were short lived, and that both mind and body can only be pushed so far before both memory and physical stamina give out. Originally, one theory suggested that sleep was thought to be a way to avoid dangerous nocturnal, carnivorous predators. As sleep research began in earnest, physiology experts cited “restoration,” where the metabolic activity of cells works to repair tissue damage and keep our bodies in homeostasis, as one of the primary reasons for sleep. Psychologists, in turn, explain that the conscious mind needs to rest so that the unconscious mind can problem solve and consolidate memories. Dreams (whether you remember them or not) are the mind’s way of resolving personal issues, and offering solutions to problems begging for attention. Dreams help us navigate our next day journey, when we take the time to decipher them.
With the introduction of electroencephalograpy (EEG), a way to measure brain waves, it was revealed that as one goes from a conscious state (awake) to an unconscious state (sleep), the amplitude (spike) of brain wave activity decreases significantly. As such, researchers presumed that the brain, like a muscle, slows down its activity dramatically. This turned out not to be the case. In the past decade, via the use of advances in technology, sleep research has become a lot more complex and comprehensive. With the use of brain scans, brain imaging and MRI’s, medical science has looked deeply into the brain to understand its secrets; several of which have been revealed regarding the science of sleep. Here is what they have found:

**The brain doesn’t turn off when we fall asleep.** Rather a whole different set of brain cells (glial cells) are busy at work washing over the brain in a synchronized flow, cleansing brain tissue of “toxic amyloid proteins” which are now known to cause problems (e.g., dementia, Alzheimer’s) if amounts accumulate over time. Brain physiologists refer to these toxins as “brain garbage.” Simply stated, the trash has to be removed nightly across the sensitive and protective blood-brain barrier for optional cognitive abilities.

**Brain cells in mice that are not allowed to rest show signs of collapse.** The same is thought to be true for humans.

**Brain cells that fire repeatedly, without rest,** are observed to create free radicals (which can then destroy cell membranes, RNA, DNA and mitochondria, accelerating the aging process). During sleep, brain neurons create antioxidants that destroy free radicals.

Additionally, here are some other reasons for sleep:

**Sleep may help maintain the integrity of telomeres** (the ends of the DNA strand involved with cell duplication). Hence, sleep delays the aging process (giving a whole new meaning to the expression “beauty rest.”)

**Sleep helps regulate cell metabolism and body weight.**

**Growth hormone is active during sleep** to help regulate the repair of damaged tissue (from exercise or injury).

**During sleep, energy from metabolic activity** is devoted to repair of bone and muscle tissues.
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The Causes of Insomnia
In the past 50 years of sleep research, what has become very obvious is the multitude of reasons why people don’t sleep well. As you read this list, keep in mind that with the exception of stress, each of these factors only contributes a small fraction to the total problem of insomnia, or what is now being called “Wakefulness Disorder.” Stress is attributed to well over half of the reasons why people claim not to sleep well or lay awake at night eluding a good night’s sleep altogether (this topic will be discussed in the next chapter).

- **Lack of Exercise**: The human body was designed to be active. Today most people are quite sedentary, meaning they are very, very inactive. Inactivity is often associated with chronic physical disabilities prevalent with the elderly. Today, the young and old alike are quite sedentary, more so now than ever before. The body may like rest, but it also craves exercise. Cardiovascular exercise ensures proper blood flow to all the body’s tissues, including the brain. The effects of inactivity on the body are quite profound and often resemble those of the aged population. In no uncertain terms, inactivity accelerates the aging process. Exercise may not be the fountain of youth, but it definitely promotes a good night’s sleep.

- **Shift Work**: People who work during the evening and early morning hours throw off their internal body clock. Chronobiology is the study of the body’s circadian rhythms, regulated by sunlight. In turn, circadian rhythms regulate everything from hormone secretion to a host of metabolic activities. When the human body’s circadian rhythms are finely tuned, optimal health prevails. Late night shift work fights the body’s natural tendencies to sleep during the hours of darkness. While some people may adapt to this time change, others notice the long-term negative effects on their health, starting with poor sleep habits during the daylight hours, particularly when other family members sleep during the normally accepted time period of darkness.

- **Frequent Urination**: There are several reasons why people need to empty their bladder in the middle of the night, including bladder size, pregnancy, the side effects of prescriptions (such as hypertension medications) and men who have issues with their prostate. As anyone can tell you, it is hard to sleep with a full bladder, and for many, it’s hard to fall back asleep in the middle of the night after a trip to the bathroom.
Chronic Pain: Joint pain, muscle pain, angina, skin irritations and other types of neurological conditions are just a few examples of chronic pain. When the mind is preoccupied with pain and discomfort, the ability to fall asleep and stay asleep is often compromised. Chronic pain as a symptom of chronic disease, such as fibromyalgia, rheumatoid arthritis and even Lyme disease compromise the conscious mind’s ability to turn off and rest.

Medications: The average American is on several medications, each with side effects and many with complicating interactions, including frequent urination, anxiety, muscle cramps, muscle tension, headaches and many more, all of which can interrupt a good night’s sleep.

Sleep Apnea: Sleep apnea is a condition where one’s ability to breathe comfortably during the night is compromised by frequent pauses (apnea). There are two types of sleep apnea: 1) obstructive and 2) central. Either type denies adequate oxygen to the brain (and other parts of the body). The consequences can be quite serious, even deadly (see Appendix A: FAQs About Insomnia, Stress and Wellness, #5).

Jet Lag: Our body’s physiology is designed to function well at the speed of life, which up until jet airplanes was pretty much living in one time zone. The advent of jet propulsion technology changed all of this. While one can travel with great ease halfway around the world in several hours, the toll on the body’s biological clock (also known as circadian rhythms) is quite noticeable, particularly when you fly east, in the direction of the planet’s rotation. Even traveling one time zone can throw off our circadian rhythms (and the same thing happens each Spring and Fall with the switch to/from daylight savings time).

Cell Phone Use: Cell phones may provide great freedom and convenience, but there is a hidden (and dangerous) cost to a wireless connection. Cell phones give off low levels of microwave radiation (known in the field of physics as Extremely Low Frequency (ELF) vibrations). Through the process of sympathetic resonance, brain cells that entrain to these vibrations can mutate into cancerous cells. Additionally, ELFs from cell phones held close to the head are also known to affect the pineal gland’s ability to make melatonin, thus affecting sleep patterns.
A recent Harvard study by Dr. Charles Czeisler found that the artificial blue light emitted from various electronic devices arouses brain neurons throwing off circadian rhythms including the sleep hormone, melatonin.

Cordless phones are no safer, as they too operate on a wireless signal. According to a recent Huffington Post article, 63% of people ages 18-29 bring their phones to bed with them. Cell phones are also noted to sabotage people’s sex life.

**Screen Addictions:** Have you ever noticed that people have their eyes glued to the screens of their tablets, smart phones or laptops at all hours of the day and night? People who exhibit this type of behavior are noted as being hypervigilant, a characteristic noted in people who have PTSD. The use of technology is wonderful, but it does have some drawbacks. One such concern is the light emitted from these screen devices that causes a hormonal shift in brain chemistry, known as melatonin suppression. A recent Harvard study by Dr. Charles Czeisler found that the artificial blue light emitted from various electronic devices arouses brain neurons throwing off circadian rhythms including the sleep hormone, melatonin. Keep in mind that airplane mode is still a WiFi signal.

**Stress:** Stress, specifically, emotional stress in the form of anxiety, worry, resentment and frustration lets the mind run wild with thoughts and emotions that keep the conscious mind awake. Research shows that over 50% of insomnia cases are the result of stress. The majority of people who claim not to sleep very well also confide that they have a very active mind that they cannot shut off when their head hits the pillow. (The next two chapters will highlight many aspects of stress.)
The Effects of Insomnia

What happens when you don’t get enough sleep each night? The list of effects from poor sleep read like a script from the popular TV show, *The Walking Dead:*

- **A Depressed Immune System:** Perhaps the most significant casualty of disruptive sleep patterns is a compromised immune system. Research reveals that sleep is essential for a highly functioning immune system. When sleep cycles are interrupted, the family of white blood cells decreases, hence the immune system is greatly compromised leading the way to a host of health-related problems.

- **Lapse of Attention:** Attention spans are short to begin with these days, but lack of sleep makes them even shorter. Not being able to gather information also compromises our ability to process and remember it. A lack of sleep is analogous to a cell phone that needs its battery charged, or when cell phone calls keep getting dropped due to a poor connection.

- **Slow Thinking:** The speed at which the brain processes information is nothing short of amazing. This speed and efficacy is greatly compromised when sleep is restricted or denied altogether. Slow thinking decreases one’s reaction time, which is not crucial when surfing the Internet, but very critical when driving or operating machines at work. It’s also crucial when having a conversation with colleagues, friends or family members. Slow thinking also means poor judgment skills, whether it’s attending a staff meeting or driving a car.

- **Irritability:** People who sleep poorly are more likely to react than respond, when stressed. They also take things more personally and reveal a quick temper with a shorter fuse. In essence, people become on edge, and stay on edge all day long.

- **Poor Memory:** Healthy brain cells are the gateway to a good memory. The current theory suggests that during sleep, the brain sorts out important information and tosses the rest. Poor sleep quality inhibits the sorting process, making memory retrieval all the more difficult in the waking hours.

- **Anxiety and Depression:** There is a HUGE correlation between depression and insomnia, with several chicken and egg
The National Geographic Society is renowned for its documentaries about nature, wildlife and remote world cultures, but in December of 2014 they came out with a stunning documentary titled, Sleepless in America. The take-home message: Americans are exhausted, sleep is elusive to many Americans and chronic sleep deprivation may have irreparable damage to one’s health. According to their estimates, 40% of American adults are sleep deprived and 70% of adolescents are far short of the proverbial eight hours of sleep each night. The association between an over-stimulated America (e.g., smart phones and video games) and a sleep-deprived America was not lost on the experts interviewed in this film. Moreover, whereas weekends were once a time to regain some work-life balance (e.g., afternoon naps), people today are so overworked that they not only miss their nap time, but tend to stay up late on weekends as well.

Citing the most current research, experts revealed that not only are poor sleep habits associated with cancer, heart disease, diabetes and several other diseases, but those who are chronically sleep deprived tend to have an increased appetite (for fatty foods). People who miss the suggested eight hours of sleep tend to eat 500 more calories per day than those who do get a good night’s sleep. The take-home message the producers of this movie want viewers to remember: sleep inspires creativity, re-balances one’s emotions, helps refresh cardiovascular health, metabolic health and gives a great boost to the immune system.
comparisons (i.e., which causes which). Regardless, anxiety and depression may inhibit a good night’s sleep, but insomnia seems to worsen each of these mental conditions, forming what is called a “negative feedback loop.” (This is addressed in more detail in Chapter 4.).

**Decrease in Work Productivity:** The eight hours we sleep each night is an investment in the quality of work in our waking hours. Poor sleep equals poor work quality. In a recent *TIME* magazine article, titled *The Power of Sleep*, it was stated that 40% of adults admitted to falling asleep at work. And that is when they actually come to work. Insomnia is one of the leading reasons why people call in sick. To a stressed worker, absenteeism often feels justified because the boundary between work and home has become non-existent with 24 hour access via emails, texting, phone calls and other means of social media.

**Insomnia and Work Productivity**

Insomnia is not only a personal health issue; it’s a corporate wellness issue. Behaviors associated with a sleep-deprived culture easily bleed into a dysfunctional workforce. Having a cognitive deficit at work shows up in the following ways:

- **Absenteeism:** Insomnia is one of the primary reasons people call in sick.

- **Presenteeism:** Presenteeism is a word to describe people who show up to work, but don’t do anything when they are there. Poor sleep habits are a leading cause of presenteeism.

- **Lack of Focus:** Concentration skills are greatly compromised at work when workers are suffering from sleep deprivation. Lack of focus impedes work quality.

- **Mistakes and Accidents:** According to the National Safety Council, 95% of worksite accidents and Inspection Failure Rate (IFR) are the result of human error (where the mind was elsewhere, also known as not being present). Mental fatigue, poor concentration skills and poor reaction time are all part of this accident equation.

- **Interpersonal Difficulties:** When several people are put together under the roof of one workspace, personality conflicts are sure
to present themselves. These conflicts are magnified, even exaggerated when several people are working under the influence of a poor night’s sleep, resulting in added tension for everyone.

**Poor Work Attitude:** Members of EAP programs, Human Resources and wellness programs support the claim that people with sleep disorders are more likely to manifest a poor work attitude, which like a virus, can spread to others within the work environment, and infect nearly everyone, making for a toxic work environment.

**Stress and Insomnia**

Question: What keeps people up at night, wide awake while others are fast asleep? Answer: A troubled mind.

When some aspect of ourselves (usually the ego) feels threatened, the mind (and the brain which houses the mind) quickly becomes engaged in the stress response. Thoughts, in the way of neural impulses, ricochet all over the brain’s interior, like a busy intersection during rush hour. Images of brain waves of people engaged in these thought processes look anything but tranquil. When people are questioned as to what events and aspects of their lives can cause so much stress that they cannot sleep, the list of stressors is endless, yet the commonalities of these problems are very familiar as noted in the list below:

- Work responsibilities
- Finances/personal debt issues
- Job security/dead-end job
- Marital issues
- Family issues
- Health care issues
- Childcare issues
- Raising teenagers issues
- Eldercare issues
- Career/purpose in life issues
- Retirement issues
- Other personal issues

**As Above, So Below**

Do our inner thoughts mirror the world we live in? While it’s true that our world today is quite complex, and perhaps much more stressful, certainly more busy, than generations ago, there are time tested ways to find the calm (and remain calm) in the storm of our 24/7 on-demand, social networking, fast-paced culture. Good sleep management is a combination of good stress management, good time management and good healthy boundaries. The expression, “As Above, So Below,” refers to the timeless wisdom that reminds us to return to the center of tranquility, that which we are a part of that connects us to the whole. Before we examine ways to promote a good night’s sleep, first, let’s review some basic aspects about stress and the anatomy of sleep.
### EXERCISE 1.1

**Self-Assessment: Poor Sleep Habits Questionnaire**

Please take a moment to answer these questions based on your typical behavior. If you feel your sleep quality is compromised, consider that one or more of these factors may contribute to patterns of insomnia by affecting your physiology, circadian rhythms, or emotional thought processing. Although there is no key to determine your degree of insomnia, each question is based on specific factors associated with either a good night’s sleep or the lack of it. Use each question to help you fine-tune your “sleep hygiene.”

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<th>QUESTION</th>
<th>YES</th>
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<td>1. Do you go to bed at about the same time every night?</td>
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<td>2. Does it take you more than 30 minutes to fall asleep once in bed?</td>
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<td>3. Do you wake up at about the same time every day?</td>
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<td>4. Do you drink coffee, tea, or caffeinated soda after 6:00pm?</td>
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<td>5. Do you watch television from your bed?</td>
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<td>6. Do you perform cardiovascular exercise 3-5 times per week?</td>
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<td>7. Do you use your bed as your office (e.g., homework, balance checkbook, write letters, etc.)?</td>
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<td>8. Do you take a hot shower or bath before you go to sleep?</td>
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<td>9. Do you have one or more drinks of alcohol before bedtime?</td>
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<td>10. Are you engaged in intense mental activity before bed (e.g., exams, projects, reports, finances, taxes)?</td>
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<td>11. Is your bedroom typically warm or even hot before you go to bed?</td>
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<td>12. Does your sleep partner snore, become restless, etc. in the night?</td>
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<td>13. Is the size and comfort level of your bed satisfactory?</td>
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<td>14. Do you suffer from chronic pain while lying down?</td>
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<td>15. Is your sleep environment compromised by noise, light or pets?</td>
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<td>16. Do you frequently take naps during the course of a day?</td>
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<td>17. Do you take medications (e.g., decongestants, steroids, anti-hypertensives, asthma, anti-depressants)?</td>
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<td>18. Do you tend to suffer from depression?</td>
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<td>19. Do you eat a large, heavy meal right before you go to bed?</td>
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<td>20. Do you use a cell phone regularly, particularly in the evening?</td>
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