Insomnia – A Book Review of Why We Sleep: Unlocking the Power of Sleep and Dreams

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Sleep has numerous benefits for our bodies. Within the brain, sleep enhances our ability to learn, memorize, and make logical decisions. Before learning, sleep prepares the brain for initially making new memories. After learning, sleep helps cement those memories into our brain so we remember them. Within the body, sleep strengthens our immune system to help prevent infection, reforms our metabolic state, regulates appetite, maintains a flourishing gut microbiome, and strengthens our cardiovascular system.

The recommended amount of sleep for adults is eight hours a night. One in every two people does not get this. Those who routinely sleep less than 6-7 hours a night experience negative consequences. They have a weaken immune system, which doubles their risk of cancer. They're at increased risk of Alzheimer's, cardiovascular disease, stroke, diabetes, depression, and chronic heart failure. They are also likely to gain weight.

Insomnia is the most common sleep disorder. It is defined as someone who is suffering from inadequate ability to generate sleep, despite allowing oneself the adequate opportunity to get sleep. This means that these individuals are unable to produce sufficient sleep quantity/quality even though they are giving themselves enough time (7-9 hours). There are two types of insomnia: sleep onset – having difficulty falling asleep, and maintenance – having difficulty staying sleep. People can have either type or both. Sleep aids are not first line treatment. Behavioral methods, such as cognitive behavioral therapy for insomnia (CBT-I), are first line. For CBT-I, therapists use a variety of techniques to break bad sleeping habits and address anxieties they have been having that inhibit sleep. Basic sleep hygiene principles are also used, making them individualized for the patient.

Sleep Loss and Cardiovascular Health:

Adults 45 years old or older who get less than 6 hours of sleep per night are 200% more likely to have a heart attack or stroke during their lifetime compared to those who sleep 7-8 hours per night. Getting an inadequate amount of sleep causes an increase in both heart rate and blood pressure due to the over-activation of the sympathetic nervous system. This part of the nervous system is responsible for your fight-or-flight state. When you get an adequate amount of sleep, your brain sends signals to make sure the sympathetic nervous system is not activated, which normally prevents an increase in blood pressure and heart rate. Also, growth hormone is turned off in this state, not allowing the body to repair any weakened vessels. An example of how important sleep is for our cardiovascular health is daylight savings. When we lose one hour of sleep due to daylight savings, there is a spike in the number of heart attacks the following day. When we gain an additional hour of sleep, the rate of heart attacks decreases the following day.

Sleep Loss and Diabetes/Weight Gain:

If you get less than 7-8 hours of sleep per night, you have an increased chance of gaining weight, being obese, and have a significantly higher likelihood of developing diabetes. Without adequate sleep, the body is unable to manage calories. Compared to getting a full night sleep, when people got less sleep, they ate 300 more calories a day. Lack of sleep also makes you crave sweets, carbohydrates, and salty snacks. When sleep deprived, your cells resist the message from insulin. They don't remove sugar from the bloodstream, leading to high blood sugar levels.

Aging and Sleep:

Three key changes occur with aging that impact sleep. The first is reduced deep-sleep quantity and quality. In your mid-late 40's, there is a 60-70% decrease in deep-sleep compared to teenage years. By the time you reach age 70, you lose 80-90% of your youthful deep-sleep. As we age, the areas of the brain that undergo the most deterioration are the same areas that generate deep-sleep. Another key change is reduced sleep efficiency, which is the percentage of time you were asleep while in bed. A good sleep efficiency is 90% or higher. By the time you reach age 80, you are at less than 70-80%. When you have a low sleep efficiency score, you have a higher mortality risk, worse physical health, are more likely to suffer from depression, have decreased energy, and are more forgetful. The third key change is disrupted timing of sleep. As we age, there is a change in circadian timing. Circadian rhythm is the natural 24 hour cycle that helps determine when we are awake and when we sleep. When we age, bedtime becomes earlier. This is due to an earlier peak in melatonin, a hormone that regulates our circadian rhythm, telling the body to get ready for bed.

Sleep Aids:

Sleep aids are commonly used when people have trouble falling asleep or staying asleep. Because they are sedatives, they do not induce natural sleep. Common side effects include: daytime forgetfulness, next-day grogginess, slowed reaction times during the day that can impact motor skills and performing actions at night when not conscious. After taking sleep aids, rebound insomnia can occur. When the person stops taking it, they suffer far worse sleep, sometimes even worse sleep than before they starting taking the pills. You can also develop a tolerance to these medications. Sleep aids have been found to increase the risk of fatal car accidents, heart disease and stroke, infection, as well as developing cancer.

Ways to Improve Sleep:

- Sleep schedule – go to bed and wake up at the same time everyday
- Avoid exercising too late in the day – don't exercise within two to three hours of bedtime
- Avoid caffeine– the effects of caffeine can take as long as eight hours to wear off
- Avoid consuming alcohol before bed – can cause you to wake up during the night when the effects of alcohol wear off. It is a sedative so it doesn't induce natural sleep
- Avoid large meals and beverages late at night – Large meals cause indigestion. Beverages can cause you to wake up during the night to use the bathroom
- Don't take naps after 3 p.m. – can make it harder for you to fall asleep at night
- Relax before bed – listening to music, reading, taking a bath, etc.
- Take a hot bath before bed – drops your body temperature when you get out of the bath, which can help you feel tired
- Sleep in a dark, cool room – you sleep better in a cool room compared to a warm one
- No electronic devices – TV, cell phone, laptop, and tablets are distracting. The blue light alters the release of melatonin, which can delay the onset of sleep
- Have the right sunlight exposure – daylight helps regulate daily sleep patterns. Get natural sunlight at least 30 minutes a day
- Don't lie in bed awake – if you are lying in bed awake for more than 20 minutes, get up and do a relaxing activity until you feel tired

Walker, Matthew. *Why We Sleep: Unlocking the Power of Sleep and Dreams*. New York: 2017.