



THE RELATIONSHIP BETWEEN *Sleep Health* AND *Your Weight*

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Everyone needs sleep. Most people are aware that poor sleep can have negative consequences on your ability to function during the day, including mood and performance. But did you know that sleep health is also related to your weight?

Research has shown that since the 1960s, the increasing rates of obesity are related to the decreasing amount of sleep per night for individuals. Those who sleep less than six hours per night tend to have a higher Body Mass Index (BMI). Beyond these associations, new research is beginning to uncover the biological connections between poor sleep and obesity.

In this article, we look at how sleep is related to weight management and focus on some of the new research findings. We also provide some tips on how you can improve your sleep health to make sure you are getting optimal sleep.

What Happens in the Body When We Sleep?



For most people, sleep is easy – they get in bed, close their eyes, drift off to sleep in about 10 to 15 minutes and wake up seven or eight hours later feeling refreshed. While sleep appears to be a passive period where the body shuts down during the night, it is actually a very active period. There are two separate processes that interact to regulate sleep:

- Circadian rhythm
- Sleep drive



The first process is the circadian rhythm, which is an internal biological clock that is guided by light and regulates many systems in the body including alertness, gut activities and core body temperature. This process keeps sleep and other biological activities in our body working on a regular schedule.

The second process is called the sleep drive, which is similar to an appetite for sleep. The sleep drive builds up gradually during our waking hours and is the reason why we eventually feel increasingly sleepier when we have been awake for an extended period of time.

“IN ADDITION TO ITS IMPACT ON WEIGHT GAIN, POOR SLEEP CAN NEGATIVELY IMPACT DIETARY WEIGHT-LOSS PROGRAMS.”



During sleep, the body is also actively regulating the release of certain hormones. Some of these hormones play an important role in metabolism and weight management. One of these is leptin, which is a hormone that signals satiety, or “fullness.” When leptin is released, we feel full, which is a sign to stop eating. Another important hormone is ghrelin, also known as the “hunger” hormone, which is secreted by the stomach and increases appetite. By regulating the release of leptin and ghrelin, regular and sufficient sleep promotes a healthy balance between energy intake (food consumed) and energy expenditure (calories burned) – two key processes in healthy metabolism.

How is Sleep Related to Obesity?

So far, we have discussed what happens in the body during normal sleep. Now let’s look at what happens when sleep is disturbed.

The amount of sleep we get every night is important. The National Sleep Foundation recommends that adults (25-65 years old) get between seven and nine hours of sleep every night. When the amount of sleep per night is consistently below seven hours, the health consequences can include obesity, cardiovascular disease and diabetes. Some studies show that short sleepers are 30 percent more likely to have excess weight and are twice as likely to be affected by obesity when compared to normal sleepers who get seven to eight hours of sleep per night. Experimental studies that restrict the time available for sleep in healthy subjects show similar results.

When sleep is poor, it can disrupt the release of leptin (fullness hormone) and ghrelin (hunger hormone), thus impacting metabolism. In laboratory studies, leptin levels were 18 percent lower among individuals who had been sleep deprived, and ghrelin levels were 28 percent higher following sleep restriction. These hormonal changes increase appetite and food intake because the body is sending more signals for hunger (due to the higher levels of ghrelin) and fewer signals to stop eating (due to the lower levels of leptin). Throughout time, increased food intake leads to a distortion in the energy balance which may result in weight gain.

In addition to its impact on weight gain, poor sleep can negatively impact dietary weight-loss programs. A study of 14 adults who were affected by obesity found that after two weeks of moderate caloric restriction, participants sleeping only 5.5 hours per night lost a smaller percentage of body fat and an increased percentage of fat-free body mass when compared to participants sleeping 8.5 hours per night. Another recent study found that poor sleep quality can impact long-term success with a weight-loss program. In this study, those who reported poor sleep quality were more likely to regain their weight one year after completing a weight-loss program compared to those who reported good sleep quality. These studies highlight how sleep health can impact the likelihood of success with a weight-loss program.

What Can you do to Improve Your Sleep Health?

Since insufficient sleep can have a negative impact on weight management, it is important to make sure you are getting the proper quality and quantity of sleep.

Fortunately, there are many simple behavior changes you can do to improve your sleep health. By following the recommendations below on a regular basis, you stand a better chance of obtaining the proper amount of sleep and feeling better during the day. This can make a big difference in weight management.

“FORTUNATELY, THERE ARE MANY SIMPLE BEHAVIOR CHANGES YOU CAN DO TO IMPROVE YOUR SLEEP HEALTH.”

- **Make time for sleep** – Make sleep a priority! Getting adequate sleep is an important part of staying healthy and active. Experts recommend about 7-8 hours of sleep per night for adults 25 years or older.
- **Keep a regular sleep schedule** – Keeping a consistent sleep schedule means your body's circadian rhythm stays consistent and well regulated.
- **Establish a pre-sleep ritual** – Give yourself time to wind down before sleep. Establishing a relaxing pre-sleep ritual about an hour before your bedtime can help your body get ready for sleep.
- **Evaluate your sleep environment** – Focus on making your bed a space that is favorable to sleep. Don't bring work-related materials to bed with you. You want to associate your bed with sleep, not the worries of the day. Try to avoid electronics and other bright lights before bedtime. Also, make sure to keep your room at a comfortable temperature and reduce outside noise and light to decrease sleep disruptions.
- **Pay attention to symptoms** – Loud snoring, excessive daytime sleepiness, dozing off during the day, breathing interruptions during your sleep, persistent difficulty falling asleep or staying asleep (without the help of medication or over the counter sleep aids) are all symptoms that indicate you might have a sleep disorder. If these symptoms apply to you, then speak to your primary care physician or contact a sleep specialist.



Conclusion:

There are many reasons why quality sleep is important for your health and weight management. Take a look at some of the strategies listed above that you can begin incorporating into your routine tonight to start getting a better night's sleep!

About the Authors:

Dr. Jason Ong is an Associate Professor in the Department of Neurology at the Northwestern University Feinberg School of Medicine. He received his PhD from Virginia Commonwealth University and completed a fellowship in Behavioral Sleep Medicine at Stanford University. Dr. Ong's primary research interest includes non-pharmacological treatments for sleep disorders, including cognitive-behavioral therapy (CBT) and mindfulness meditation. Additional research interests include the impact of sleep disturbance on chronic health conditions such as migraine headaches. He also has a clinical practice where he delivers CBT for insomnia and provides psychosocial support for patients with narcolepsy. Dr. Ong is the current President of the Society of Behavioral Sleep Medicine.

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