

AMERICAN SOCIETY OF SAFETY ENGINEERS NORTH FLORIDA CHAPTER

JANUARY 2016 NEWSLETTER

To Sleep or Not to Sleep, That is the Question

Over the holiday season, I had the opportunity to sleep in quite often. It seemed like a good idea at the time, so I did it. But according to a recent study, waking early on workdays and sleeping in on days off may not be all that it is cracked up to be. This study revealed that when routine sleep habits are disrupted, our risk for diabetes, heart disease, and obesity rises.

You're likely already aware of the growing body of research indicating that shift work, which imposes a habitual disruption in the circadian system, increases the level of risk of diabetes, heart disease, stroke, and obesity. However, thus far it has largely remained unclear if day-to-day circadian dysregulation, i.e., sleeping in, contributes significantly to these risks.

It goes without saying that individuals differ in circadian phase preference, known as chronotype. Some people like to stay up late; some people do not. Regardless of their preference, many people are constrained by modern work obligations to specific sleep schedules. So

for the night owls, they often cannot afford to stay up late during the work week but certainly do so on weekends. When they do this, they often experience what is referred to as social jetlag, or SJL. This arises from the ongoing discrepancy between their internal circadian rhythm and actual sleep times imposed upon them by work and other obligations.

The new study, which was published in the *Journal of Clinical Endocrinology & Metabolism*, examined whether chronotype and/or SJL associate with components of cardiovascular disease risk beyond the known effects of sleep disturbances, depression, poor health behaviors, etc. The study included 447 men and women who were aged 30 to 54 and worked at least 25 hours a week outside the home. They each wore a wristband that recorded their sleep and movement 24 hours a day for one week. Additionally, questionnaires were used to gather information on their exercise habits.

The study indicated that nearly 85 percent of the participants slept longer on their days off than on workdays; the remaining 15 percent of the group woke

earlier on their days off. The results of the study indicated that those with large differences between their sleep schedules on workdays and free days tended to have worse cholesterol and fasting insulin levels, greater insulin resistance, larger waist size, and higher body mass index (BMI). This link between SJL and the health risk factors persisted even after adjusting for other measures of sleep and lifestyle behaviors, such as physical activity and calorie intake.

Study author Patricia Wong, of the University of Pittsburgh, explained that other researchers have found that SJL relates to obesity and some indicators of cardiovascular function. She went on to say that this study differs as it is the first one to build upon that work and show that even among healthy, working adults who experience a less extreme range of mismatches in their sleep schedule, SJL can contribute to metabolic problems. "These metabolic changes can contribute to the development of obesity, diabetes and cardiovascular disease," Ms. Wong explained.

However, the association seen in the study does not prove a direct cause-and-effect relationship between

inconsistent sleep habits and the development of these diseases. "If future studies replicate what we found here, then we may need to consider as a society how modern work and social obligations are affecting our sleep and health," Ms. Wong said.

"There could be benefits to clinical interventions focused on circadian disturbances, workplace education to help employees and their families make informed decisions about structuring their schedules, and policies to encourage employers to consider these issues," Ms. Wong concluded.

So where does all of this leave those individuals who do not get enough sleep during the week and attempt to catch up over the weekend? Does this strategy work? According to an article in *Scientific American*, it does not work completely – especially short term. For example, suppose that you lost two hours of sleep every night last week because of an important work project due on Friday. On Saturday and Sunday, you slept in, getting a total of four extra hours. However, you're still carrying around a heavy load of sleepiness, or what experts call "sleep debt." In this particular case it adds up to a six-hour deficit, almost a full night's sleep.

The *Scientific American* article goes on to elaborate on this subject by explaining that studies have shown that such short-term sleep

deprivation leads to a foggy brain, worsened vision, impaired driving, and difficulty with remembering things. Long-term effects, as mentioned previously in this article, include obesity, insulin-resistance, and heart disease.

Moreover, a study published online on October 1, 2013 in the *American Journal of Physiology – Endocrinology and Metabolism* suggests that catch-up sleep may not make workers any safer. In this particular study, participants who slept six hours for six consecutive nights did not improve their performance on assessments measuring their attention after they had slept for 10 hours per night for three days. Although participants reported feeling less stressed and less sleepy after the three-day period, they were still affected, researchers concluded, by the long-term sleep deprivation.

In conclusion, according to Lawrence J. Epstein, medical director of the Harvard-affiliated Sleep Health Centers, there is ray of hope. Like all debt, with some determination and work, sleep debt can be repaid over time. But it won't happen in one extended snooze fest. Sleeping an extra hour or two each night is the way to catch up. So, make it a New Year's priority to pay off sleep debt. Go home, read some Shakespeare, then sleep on it.
Bob Dooley

Article Sources and Hyperlinks of Interest

<http://press.endocrine.org/doi/10.1210/jc.2015-2923>

<http://www.sciencedaily.com/releases/2015/11/151118155112.htm>

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<http://www.smithsonianmag.com/ist/?next=/science-nature/your-alarm-clock-may-be-hazardous-to-your-health-164620290/>

<http://www.safetyandhealthmagazine.com/articles/10412-sleepy-and-unsafe-worker-fatigue>

<http://www.scientificamerican.com/article/fact-or-fiction-can-you-catch-up-on-sleep/>

Next ASSE Local Chapter Meeting

Our next membership meeting will be held at the Northeast Florida Safety Council on January 20 at 11:30 a.m. The topic is Confined Space Entry Please RSVP to Steve Wilson at steven_wilson1@me.com.

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