Alcohol Interfered With Exercise's Benefits for Sleep

Are you revamping an exercise routine after our long, crazy year?

January 4, 2022 By Michael Breus, PhD

Regardless of where you are in your exercise journey, there's some important new information to know about the relationship between alcohol, exercise, and sleep.

When you're trying to live a healthier life, focused on longevity AND the quality of your life in the here and now, exercise is a big priority. Sleep is, too. Exercise and sleep are important on their own, and they also can have a mutually beneficial relationship, one that plays out on a daily basis.

How well we sleep affects our physical performance. That's true for all of us, from elite athletes to recreational team sport players to those of us doing our best to fit in a 20-minute workout whenever we can.

And regular physical activity contributes to better, longer, more restful and refreshing sleep.

This bi-directional relationship between sleep and exercise is well documented in research—and I'll walk you through some of the most important takeaways in just a minute.

But, of course, sleep and exercise habits don't exist in a vacuum. They happen alongside all our other health and lifestyle choices and conditions, including diet, stress management—and our adult beverage drinking habits.

Some really interesting new research published in the journal Sleep has shown that alcohol consumption may undermine the benefits that exercise confers to sleep, with effects seen on a daily basis.

The benefits of exercise for sleep

Before we look at this latest research, let's do a quick review of how exercise can enhance sleep. There's a large, and ever-growing body of research showing that exercise can:

- Help you fall asleep more quickly
- Reduce nighttime awakenings, giving you more restful, higher quality sleep

- Increase total sleep amounts
- Reduce daytime sleepiness
- Increase time spent in deep, slow-wave sleep, and improve the quality of this highly restorative sleep stage. New research shows that a single 60-minute session of vigorous exercise may enhance the quality of slow wave sleep.

Exercise can also help improve sleep for people with insomnia. Research shows that people who generally sleep well experience improvements to their sleep with routine physical activity. For people who struggle to sleep well, and experience symptoms of insomnia, exercise may make an even greater difference. Studies show that in people with insomnia, physical activity can reduce insomnia symptoms as well as prescription sleep medication. One study conducted in people with chronic insomnia showed a significant improvement to sleep after a single session of moderate aerobic exercise. And studies of the longer-term impact of exercise on sleep show improvements for insomnia as well. This 2015 study found that 150 minutes per week of moderate-to-vigorous exercise led to significant reductions in the severity of insomnia, and significantly reduced depression and anxiety, which frequently occur in tandem with insomnia.

Among these studies in people with disrupted sleep, aerobic exercise is the most frequently examined for its sleep benefits. The impact of strength and resistance training on sleep is not nearly as well studied. But the research that does exist shows improvements to sleep and mood from strength training, including for people with sleep problems.

Physical activity also delivers indirect benefits for sleep. Exercise helps us maintain a healthy weight and avoid excessive weight gain, reducing risk for obstructive sleep apnea. Obesity is a primary risk factor for OSA, a serious, chronic, and common sleep disorder that disrupts normal breathing during sleep.

Regular exercise helps to elevate and stabilize mood, reducing symptoms and risks for depression, anxiety, and stress. Depression, anxiety and stress all can contribute to serious and often chronic disruptions to sleep.

Remember, sleep has benefits for exercise, too. A restful night of sleep is critical for recovery between workouts. And better sleep can improve speed, power, reaction time, and endurance, while also reducing your risk for injury.

How alcohol affects sleep

I've written before about the disruptive effects that alcohol can have on sleep, including how the timing of alcohol intake matters to intoxication, and the influence of chronotype and circadian rhythms over the body's ability to metabolize alcohol.

Alcohol's influence on sleep is complex. Alcohol has both sedative and stimulant effects. Drinking

can make us fall asleep more quickly, but alcohol's presence in the body at night leads to lighter and more fragmented sleep throughout the night, as alcohol is metabolized.

The effects of alcohol can vary from one person to the next, and the degree of alcohol's disruption to sleep is influenced by how much we drink, how often we drink, and when we consume alcohol. Heavier drinking will be more disruptive to sleep than light and moderate drinking, for most people. However, research shows that low-to-moderate alcohol consumption—that's 1 or 2 drinks a day for men, and 1 drink a day for women—can have significant negative effects on sleep quality.

And new research indicates that greater alcohol consumption not only disrupts sleep quality, but also interferes with the sleep-promoting benefits of exercise.

How alcohol can undermine the good that exercise does for sleep

This latest study does something important for our understanding of how to navigate the sleep-exercise relationship, in order to maximize its benefits. In this study, scientists investigated the impact of alcohol consumption on sleep, and on the benefits of exercise for sleep. They conducted their study in naturalistic conditions—not in a sleep laboratory, but in participants' own environments, living out their real-world behaviors. The study included 70 adults between the ages of 18-50, all of whom slept more than 6.5 hours a night, and who wore activity trackers to measure sleep and exercise, and who recorded the number of drinks they consumed each day, over a period of 7 days.

Researchers found that the people who averaged more daily physical activity throughout the 7-day study period also experienced fewer awakenings throughout the night after initially falling asleep. That tracks with what we know about how regular exercise can enhance sleep.

They also that greater alcohol consumption over the 7-day period was linked to more frequent nighttime awakenings. And, on the individual days when people consumed more alcoholic drinks, they experienced more nighttime awakenings and more fragmented sleep. These associations, between greater alcohol consumption and lower quality sleep, align with what we know about how alcohol can disrupt sleep.

Here's where things get really interesting. When the researchers analyzed how alcohol affected the relationship between sleep and physical activity, they discovered a couple of important things:

Over the 7 days, more frequent nighttime awakenings were associated with lower levels of physical activity—BUT ONLY among people with higher alcohol consumption. (This further confirms what we already know: that alcohol contributes to more restless sleep.)

On a day-to-day basis, more physical activity was linked to more restful, less fragmented sleep—BUT ONLY for the people with lower alcohol consumption.

The takeaway? Drinking more may blunt the positive effects of physical activity on sleep, on a day-

to-day basis.

This study doesn't tell us everything we need to know about the influence of alcohol over the sleep-exercise relationship. One important gap? We can't see from these results the effects of the timing of alcohol consumption on sleep, among people who get more, and less, daily physical activity. But this research points toward an important, under-examined factor in our understanding of the dynamic between sleep and exercise, as it plays out in the real world.

What to do

I'm not suggesting people not drink at all. But everything we know about the influence of alcohol on sleep indicates that moderation is essential for protecting sleep. And this new study adds strength to that recommendation, by its suggestion that drinking more may cause you to lose some ground in acquiring the sleep-enhancing benefits that daily exercise can deliver.

I recommend that people keep drinking in the low to moderate range. That's 1 (low) or 2 (moderate) drinks for men a day, and 1 (low and moderate) drink a day for women.

I also recommend people consider mixing up their routines, to avoid and/or limit stretches of daily drinking. The habit of having an alcoholic drink every day is easy to fall into. For some of us, that habit might have become more entrenched over the past year, with all its difficulty, and tedium, and stay-at-home time. As we know from research, even low-to-moderate drinking takes a toll on sleep. Light drinking, on a daily basis, means a daily toll on sleep that can be increasingly taxing over time. I encourage my patients to mix up their cocktail routine with these sleep-promoting, non-alcoholic drinks, which are great for holidays and any days.

To protect your sleep, don't drink within 3 hours of bedtime. This allows the alcohol to metabolize in your body, and ensures you won't begin your night of sleep with alcohol in your bloodstream. This 3-hour guideline can help you continue to drink moderately without affecting your rest that night.

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