

How sleep-deprived employees impact your bottom line and what you can do about it

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Executive summary

Since 1914, when Thomas Edison identified sleep as “a bad habit”, corporate culture has confused sleeplessness with high performance.

More than half of Americans report suffering from at least one symptom of insomnia each week.

Organizations that don’t address this problem face costs due to on-site accidents, higher need for health care, and lost productivity due to workplace conflicts and lower overall morale. Recent research shows a company can expect our culture of sleep deprivation to cost more than \$3,200 per employee, per year.

People grappling with this debilitating issue typically try over-the-counter and prescription sleep aids, supplements, hypnotherapy, relaxation techniques, online sleep journals, alarms that purport to track one’s sleep cycles, naps, and weekend sleep-ins.

Meanwhile, forward-thinking organizations such as NASA, Google, Ben & Jerry’s, The New York Times, AOL-Huffington Post, Nike, Proctor & Gamble, Cisco, Oracle, Time Warner (...and the list goes on and on) provide spaces for employees to nap during the day while others, like Best Buy and Yahoo have toyed with systems of flexible scheduling.

This white paper will show why organizations need to go beyond nap rooms and flextime to offer employees the tools to change their sleep behaviors. And, these tools need to be available when and where they will be most effective — at night in the bedroom or, for night-workers, before the major sleep of the day.

Practitioners looking to solve sleep problems on a large scale have been experimenting with the use of personal mobile devices to deliver programs based on the principles of cognitive behavioral therapy for insomnia (CBTi).

This strategy promises to be effective because the majority of American workers have mobile devices nearby when they go to bed.

As The Sleep Doctor™ Michael Breus, PhD says, “Everything you do, you do better with a good night’s sleep.™”

When people sleep well, they experience a boost in wellness and an improved body image — a sturdy foundation for tackling other health-related behaviors.

Companies that tackle this issue will see the benefit, whether they measure healthcare costs, productivity or all-round profitability.

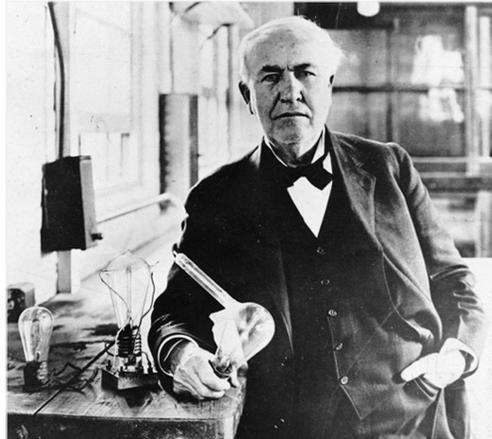
Let there be light... and sleep deprivation

It's no surprise that the father of artificial light, Thomas Edison, was proud to declare that he needed little sleep.

In an 1889 interview with *The Scientific American*, he said, "I hardly ever sleep more than four hours per day, and I could keep this up for a year."¹

By 1914, the thirty-fifth anniversary of incandescent light, Edison used the occasion to identify sleep as a "bad habit." He proposed that all Americans sleep one hour less per day and predicted a future of sleeplessness:

"Everything which decreases the sum total of man's sleep increases the sum total of man's capabilities. There really is no reason why men should go to bed at all, and the man of the future will spend far less time in bed."²



THOMAS EDISON

Our culture of sleeplessness

Fast-forward 100 years, and the following scenarios have become common:

- A sales manager downs a pot of coffee in the morning, a few energy drinks in the afternoon, then can't seem to settle down until 1 am
- A top trader goes to bed at 11 pm, only to wake up at 3 am to check the European markets
- An admin assistant works 10-hour days, goes home and relaxes with a few drinks to settle down for sleep, then wakes up groggy in the morning
- A junior associate stays ahead of the competition by working until midnight, then rising at 6 am to get a jump on the day

Company leaders and workers alike confuse sleeplessness with high performance.

Couple this with the fact that more than 90 percent of Americans look at devices that emit a sleep hormone-reducing light in their final hour before bed at least a few nights per week.³

What do we see? An epidemic of sleep deprivation.

It's incredible to see how Edison's prediction is coming true. But his bright idea is proving to be dim-witted when we count up the cost to a company's bottom line and to its employees' health and wellness.

A nation of insomniacs

How much sleep does an adult really need? The National Sleep Foundation (NSF) recommends that the average adult get between seven and nine hours of sleep per night.⁴ During the National Sleep Foundation 2013 Poll, the average American reported getting 6 hours and 51 minutes each night.⁵

The difference between the amount of sleep people are supposed to get vs. what they actually get may not sound too bad, but studies have proven that even moderate sleep shortages accumulate into sleep debt over time. Furthermore, those who are sleep-deprived aren't aware of the increasing cognitive deficits from which they suffer.⁶

When the NSF polled people on sleep problems, more than half reported at least one symptom of insomnia a few nights each week. (The poll defined insomnia as difficulty falling asleep, waking up a lot during the night, waking up too early and not being able to get back to sleep, or waking up feeling un-refreshed.) One-third said they had at least one of these symptoms almost every night.⁷

Also, it seems 10 percent of the U.S. population is functionally impaired enough during the daytime to be formally diagnosed with insomnia.⁸

One of the most alarming consequences is the number of sleep-related accidents. The NSF has reported that one-third of all adult drivers say they have fallen asleep at the wheel⁹ while the Institute of Medicine estimates that drowsy driving causes 20 percent of all serious crashes each year in the US.¹⁰

The cost: \$3,000+ per employee

Far from "increasing the sum total of their capabilities", as Edison preached, sleep deprivation makes it difficult for people to remember things, slows their responses, makes them moody, increases their errors, and makes it difficult for them to be creative.¹¹

In fact, people who are even moderately sleep-deprived perform as poorly or worse than those who are too drunk to drive legally.¹²

Our culture of sleeplessness has created workers who log long hours but get less done. This state of affairs has become so prevalent, researchers have coined the term "presenteeism" to describe it.

A Penn State study showed that for every hour of interrupted sleep the night before, people spent an average of 8.4 minutes more “cyberloafing” — checking e-mail, surfing social media and news sites.¹³

As Harvard researcher Ronald Kessler says, in an information-based economy, it’s difficult to find any other condition that has a greater impact on productivity.¹⁴ By factoring in presenteeism, he and his colleagues found the cost of lost work performance due to insomnia is approximately \$2,280 per employee each year.¹⁵

But this isn’t the end of the story.

In the long term, poor sleep has been linked to the same chronic diseases that create the heaviest economic burden for organizations: hypertension, heart disease and depression.¹⁶ Lack of sleep also contributes to obesity, diabetes, strokes, and irregular heartbeats.¹⁷

Overall, researchers have estimated the direct medical costs of insomnia to be about \$924 per person per year.¹⁸

In all, a company can expect the culture of sleep deprivation to cost more than \$3,200 per employee, per year.

Sleeping pills and nap-rooms don’t cut it

Those who do identify the problem often try to solve it with a number of ad-hoc solutions, including the following.

- Sleeping pills
- Supplements
- Hypnotherapy
- Relaxation techniques
- Apps that track sleep cycles or online sleep journals
- Catch-up sleep on the weekend
- Naps during the workday
- Flextime

As discussed below, none of these solutions are truly reliable. If they were, would we still be facing an epidemic of sleeplessness?

Over-the-counter (OTC) sleeping pills

These can help in specific situations, for example when someone has pain preventing them from sleeping. However, these medications are meant for short-term use. Drug-induced rest does not offer the same reparative benefits as natural sleep. Plus, OTC sleeping aids can cause psychological or physical dependency.

Prescription sleeping pills

Some popular prescription sleeping pills contain zolpidem. While effective, these can cause side effects such as hallucinations, memory problems, daytime tiredness, sleepwalking, and overeating. It's standard to recommend that anyone who takes these medications spend a full 8 hours in bed. Those who don't, increase the risk of side effects as well as the chances of driving or operating machinery while not fully awake. Scary stories about people getting into trouble while under the influence of the most popular sleeping drug, Ambien, are continuing to hit the press. There have been cases of people getting into car accidents and even committing murder with no recollection of the incident afterward.¹⁹

Overall, research has shown the use of some sleeping pills increases the risk of mortality by almost five times.²⁰ Sleeping pills are clearly a short-term solution that must be used as instructed.

Supplements

People who want to avoid drugs often turn to supplements such as chamomile, melatonin, valerian, and kava, with the idea they are a more natural solution. But supplements, just like drugs, have their side effects. People who take supplements should do so with a doctor's approval to make sure they don't interact with other medications or physical conditions. And, just like sleeping pills, supplements treat the symptoms, not the underlying causes of sleeplessness.

Hypnotherapy

New data shows this technique, otherwise known as hypnosis, can be effective. People who try this method must be suggestible, or inclined to accept and act on the suggestions of others. Also, this method can be costly and time-consuming for companies to roll out in the course of an employee wellness program.

Relaxation techniques

A warm bath, light reading, meditation, yoga, or even counting sheep can all help people settle down to sleep. But for best results, these must become part of a regular routine, not occasional desperate measures. They require discipline and consistency, which are usually hardest to muster in the evening when a person is already tired.

Apps that track sleep cycles, online sleep journals

These are fun, but they are more trendy than effective. When considering an app, it's important to ask "Has this method been scientifically proven?" Truly addressing insomnia takes a more comprehensive strategy.

Catching up on the weekend

One of the most common strategies for managing busy, sleep-deprived work weeks is to catch up on the weekend. But does this really work? Researchers at Penn State found although extra sleep on the weekend can remedy problems with daytime sleepiness, reduce excess inflammation and raised levels of the stress hormone cortisol, it does not correct deficits in one's ability to focus.²¹ Recovery sleeps can be useful occasionally, but the best sleep strategy is to avoid sleep deprivation in the first place.

Naps during the workday

Forward-thinking companies such as organizations such as NASA, Google, Ben & Jerry's, The New York Times, AOL-Huffington Post, Nike, Proctor & Gamble, Cisco, Oracle, Time Warner (...and the list goes on and on) provide spaces for employees to nap during the day. Naps have been proven more effective than a coffee at tackling that afternoon lull.²² And, many experts say naps are equal to exercise in terms of the great health benefits they provide.²³

Naps are a great addition to a healthy regimen but not a solution to compensate for chronic sleep deprivation. A good night's sleep includes five stages that take approximately 90 minutes each. Every stage plays an important role in repairing body and mind for the day ahead. Deep sleep, stages 3, 4 and REM (rapid eye movement) sleep are the most important. This means people should be getting at least 7.5 hours of sleep each night.

Flextime for work schedules

Company initiatives that give employees the freedom to set their own schedules have boosted the typical employee's sleep by close to an hour.²⁴ However, during the recent economic downturn, high-profile companies such as Yahoo and Best Buy pulled back their flexible workplace programs, claiming the need to have people working together in the office.

Giving employees more control over how they tackle their workload is a start. But there's no guarantee they will actually use that freedom to get any more sleep.

CBTi proven more effective than pills for insomnia

Fortunately, there is a better solution that can help insomnia sufferers and anyone with poor sleep habits: Cognitive Behavioral Therapy for Insomnia (CBTi). As its name implies, CBTi is one part learning about, then changing, the thinking that prevents a good night's sleep. The second part is about changing the way one prepares for sleep. It's generally implemented through one-on-one talk therapy with a qualified practitioner.

In a study comparing it with the prescription drug zopiclone, insomnia patients who underwent CBTi spent more time in stages 3 and 4 sleep and less time awake than those given the drug. The CBTi group also showed lasting benefits six months later, while the group using prescription meds had no lasting results.²⁵

In short, CBTi addresses the underlying causes of insomnia rather than just relieving symptoms.

That's why it's recognized as a first-line treatment in the US National Institutes of Health Consensus Statement²⁶, The World Health Organization, and by the British Association of Psychopharmacology.²⁷

Light sleep		Deep sleep	REM sleep
Stage 1	Stage 2	Stages 3 and 4	Stage 5
<ul style="list-style-type: none"> - Transition between wakefulness and sleep - Brainwaves slow down - Eyes begin to roll slowly back and forth - Only lasts about 5-10 minutes - If you wake up during this stage, you might think that you weren't really asleep 	<ul style="list-style-type: none"> - Brain produces rhythmic brain waves called sleep spindles - Body temperature decreases - Heart rate slows - Lasts about 20 minutes 	<ul style="list-style-type: none"> - Slower brain waves called delta waves - Real physical restoration begins - Cellular growth and repair - Where the most growth hormone is emitted - Lasts about 30 minutes 	<ul style="list-style-type: none"> - Known as rapid eye movement - Characterized by eye movements, increased respiration rate, and brain activity - Muscles become more relaxed while brain system is more active - Dreaming occurs because of the increase in brain activity and temporary paralysis of voluntary muscles - Mental restoration will occur - Stores the information organized in stage 2

Mobile devices help scale up CBTi in the workplace

While CBTi is effective, it has two serious drawbacks for companies interested in using it for employee wellness programs:

- A lack of qualified practitioners
- The high cost of one-on-one therapy, which is not scalable in an enterprise with more than a handful of employees

Practitioners looking for a way to help solve sleep problems on a large scale have started to experiment with the use of mobile devices.

It's ironic that one of the biggest culprits in America's sleeplessness epidemic— mobile devices — may be the solution. They've already been proven effective as disseminators of CBT therapies for health issues such as depression²⁸ and obesity.²⁹

Making a mobile device into a tool to deliver a program based on CBTi principles promises to be a particularly effective method for helping with sleeplessness because the vast majority of American workers have these devices nearby when they go to bed.

While the company has no business in the bedrooms of its employees, apparently smartphones and electronic tablets do. These devices provide a way to put the tools for greater wellness in the hands of employees when and where they need them — at night in the bedroom, or for night-workers, before the major sleep of the day.

What to look for in an ideal solution

While there are many sleep apps and online programs available, how do you find a program based on sound CBTi principles that will truly solve sleep problems?

Be sure your sleep solution has all the following features:

- Designed by a professional and peer-recognized sleep expert
- Supports all popular platforms: Android, iOS, Mac, and PC
- Offers interactive experience with on-demand audio and video content
- Supports personalization through online interviews, user profile, and user preferences
- Provides instant tips and techniques (such as relaxation exercises, calming music, and meditation) for falling asleep
- Shows how to makeover a bedroom for an ideal sleeping environment
- Provides a personalized plan
- Shows how to create a healthy pre-bed routine
- Easy to implement and requires little or no involvement from IT department
- Supports 24/7/365 access at any time from anyway, even without WiFi or cell connection
- Aggregates statistics to track employee engagement
- Anonymizes all data to preserve employee privacy

Fortunately, there is one product on the market that meets all these criteria: The Mental Workout® Good Night™ cognitive behavioral change program for iPhone, Android, Mac, and PC.

About Good Night™ by Mental Workout®

Good Night™ is a cost-effective CBTi program designed by nationally renowned sleep expert Dr. Michael Breus, PhD, AKA The Sleep Doctor™. The program helps people conquer their insomnia and improve their sleep quality with cognitive behavioral change and sleep hygiene.

Dr. Breus is a clinical psychologist, Diplomat of the American Board of Sleep and a fellow of The American Academy of Sleep Medicine. He's also an excellent communicator who regularly appears on The Dr. Oz Show, CNN, The Doctors, CBS This Morning, and in the Huffington Post.

As a clinical psychologist, Dr. Breus was looking for a way to help solve the large-scale sleep problem that exists in America today. By creating the Good Night™ program on the multi-device platform developed by Mental Workout®, Dr. Breus can now help millions of people - anytime, anywhere – in a personalized way, on their own terms.

The program offers instant tips to help the user fall asleep quickly, a 10-day plan for daily guidance, and a range of tools to use as needed. The program includes relaxation exercises, a pre-bedtime routine, a guide for a bedroom makeover, traveling techniques, and more.



DR. MICHAEL BREUS, PHD

Bring Good Night into your organization

Mental Workout is a pioneer in providing access to health-related education and guidance on mobile devices. Here are some of the advantages of working with Mental Workout to improve the sleep of your employees:

- **Great user experience:** Good Night is accessible seamlessly on both iPhone, Android, Mac, and PC. Your employees will be able to access the program easily at home, in the office, or on the go.
- **Easy implementation:** Distribute subscription codes via email or gift cards, or send your employees to a customized web page where they can sign up.
 - No IT involvement required
 - Your employees can get started right away
- **Automatic upgrades:** Automatic content and feature updates to the program

- **Customized welcome:** Customize the welcome message with a video and your logo.
- **Customer support:** Online customer support with a guaranteed response within 24 hours during weekdays
- **Usage reporting:** Track uptake and ongoing engagement without infringing your employees' privacy.
- **Cost-effective:** Only \$16.99/employee/year minus any applicable volume discounts. Includes a complimentary license for each employee's spouse/partner.
- **Promotional tools:** Can be delivered with promotional tools to maximize uptake:
 - Promotional content: Posters, table cards, etc.
 - Content for your intranet, blog, newsletters, or employee magazine
 - Online or in-person workshops and events
 - Expert moderation of online groups/forums
 - HR training
- **Other programs available:** In addition to Good Night, Mental Workout also offer other programs such as Mindfulness Meditation, Freedom from Stress, and Up in Smoke (smoking cessation), and they are all accessible from within the same app.

More information

To find out more about how Good Night can improve your company's bottom line while helping your employees boost their wellbeing and become more effective at work, call (+1 631 209 5700 ext. 2) or email business@mentalworkout.com. Reseller opportunities are available.

About Mental Workout

Mental Workout is bringing together the power of mobile technology and the benefits of psychology to improve people's lives. Inside the Mental Workout iPhone and Android app, and on mentalworkout.com, users can subscribe to a growing collection of programs focused on health, well-being, and performance enhancement — all of which are designed by top experts.

Aggregate usage data enables Mental Workout to improve the programs over time, creating a cycle of learning and development that is truly revolutionary.

In addition, Mental Workout offers a suite of tools and services to help businesses solve the corporate wellness dilemma by inspiring their employees to take action, enabling them to remain anonymous, and providing the flexibility of participating at work, at home, or on the go.

For more information, visit www.mentalworkout.com.

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