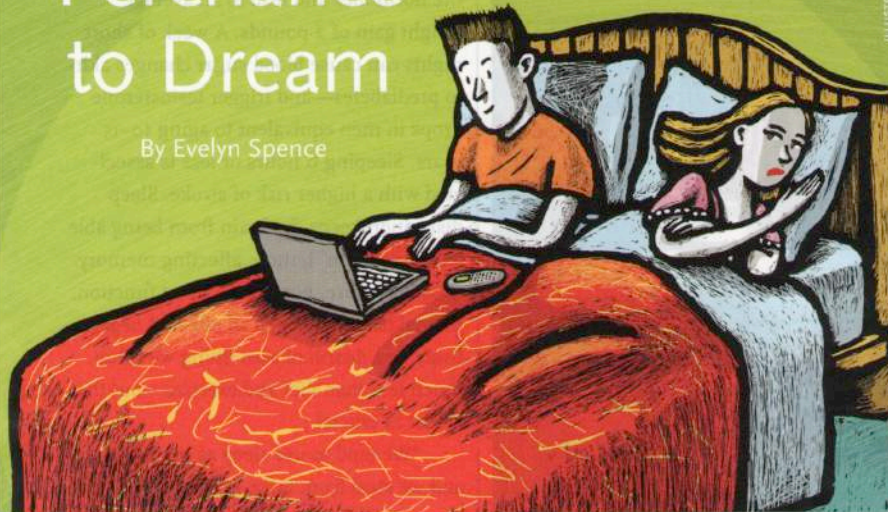


Perchance to Dream

By Evelyn Spence



The deep voice of Clarence Ferguson II rumbles through the control room of the University of Washington Sleep Center, where polysomnographic technologist Tihina Demsash leans toward a large computer monitor. On the lower right of the screen, a grainy black and white video shows Ferguson, 64, settling his 6'3" frame under the comforter of a double bed in his private hospital suite—along with a mic on his throat, a sensor on his jaw, straps around his chest and abdomen, 10 electrodes on his scalp and one on each leg, a tube in his nose, and a pulse oximeter on his right index finger.

"Hey, you guys out there, I feel like Frankenstein."

Demsash offers soothing murmurs—all the monitors have a purpose—and as he quiets down, she watches how two dozen jagged lines of black, green, red, and blue move across the display, keeping tabs on oxygen levels in Ferguson's blood, his eyelid movements, brain wave patterns. She's look-

ing for signs of sleep apnea—when the throat collapses during sleep, which disrupts breathing—a possible reason for his uncontrollable high blood pressure. She's already gently explained to him that his habit of keeping the television on until 4 A.M. is not helping his sleep patterns. Around us, snores and sighs and heavy breathing come from the other dozen control room computers, as other techs observe their own patients tossing, turning, sleeping and dreaming.

It's 11:01 P.M. She points to where Ferguson's spiky brain waves have started to calm. "He's entering the first phase of sleep," she says. "Let's see how he does until we wake him up tomorrow at 6."

Clarence Ferguson is one of an estimated 70 million Americans who suffer from chronic sleep problems—apnea, insomnia, or simply not allowing enough time for zzzz's. It's an issue that's gotten steadily worse: A century ago, people in industrialized nations were getting close to 9 hours of sleep per night. Today, it's about 7 hours, and 30 percent of us average less than six hours. "With a 24-hour society, a 24-hour economy, and technology everywhere, we live in an increasingly toxic environment for sleep," says Dr. Nathaniel Watson, co-director of UW Medicine's Sleep Center and the president of the American Academy of Sleep Medicine. "It's not normal for human physiology."

This has serious consequences. The

COUNTING SLEEP



Percentage of adults who have at least one electronic device in their bedroom at night.

Percentage of children who do.

[sleepfoundation.org]



60 MILLION

Number of prescriptions for sleeping pills written in 2012.

[IMS Health; aarp.org]



Percentage of adults who have chronic insomnia. [National Center for Sleep Disorders Research at the National Institutes of Health]

5

Stages of sleep: (1) drowsiness;

(2) light sleep; (3&4) deep sleep; (5) rapid-eye-movement (REM) sleep. The REM stage is closely associated with dreaming.

100+

Eye movements per minute during REM sleep.

20%

Amount of time adults spend in REM sleep.

23

Percentage of working adults who do work relating to their job within an hour of going to bed several nights a week. [sleepfoundation.org]

\$32 BILLION

Dollar volume that the sleep industry generates in the U.S. [IMS Health]

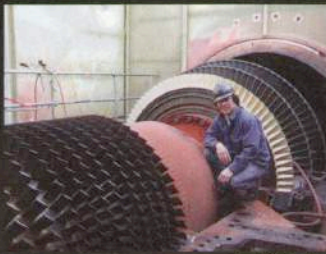
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more sleep we lose, the more health problems arise; the more researchers look for causes, the more connections they find. Just in the last few years, studies have shown that squandering several hours of sleep a few nights in a row can alter appetite hormones and lead to an average weight gain of 2 pounds. A week of short nights can cause blood sugar changes akin to prediabetes—and trigger testosterone drops in men equivalent to aging 10–15 years. Sleeping 6 hours or less is associated with a higher risk of stroke. Sleep disruption keeps the brain from being able to hit the “save” button, affecting memory. Blood pressure, hormones, heart function, mental health: They're all affected negatively by a dearth of something we value much less than diet and exercise—but that is just as crucial.

“We tend to use sleep as our cushion, and we steal from it for working late, catching early flights, living our modern lives,” says Dr. Ana Krieger, medical director of the Weill Cornell Center for Sleep Medicine in New York. “Our bodies are very resilient, but we can only take it for so long.” More concerning to Matthew Walker, a professor of neuroscience and psychology at the University of California, Berkeley, is that lack of sleep may be contributing to the rapid rise of disorders such as diabetes and obesity.

Evidence is clear that sleep affects most, if not all, of our body systems. There's no magic formula for how much rest each of us needs. “People are susceptible to sleep deprivation to a different extent,” says Dr. Michael Grandner, a psychiatrist and member of the Center for Sleep and Circadian Neurobiology at the University of Pennsylvania. “And we generally don't consider it a problem. Our society tends to be proud of how little sleep we need to get by.”

So how do you know if your nights are subpar? If it regularly takes you more than a half-hour to fall asleep, or you're awake in the middle of the night for three-plus nights a week over the course of a month. If you're feeling chronically exhausted, or wake tired and don't perk up within a few minutes. If you have trouble staying awake when staying awake is normal—at meetings or

COMMON SLEEP PROBLEMS

Most sleep disorders fall within these four categories.

- **INSOMNIA:** If you're like 50 percent of Americans, you have difficulty falling or staying asleep. For some, it's short-term (known as *acute* or *adjustment insomnia*), usually caused by stress, anxiety and poor sleep hygiene. For 1 in 10 of us, it can become chronic—at least three nights a week for a month or longer—and may signal an underlying medical condition.

- **APNEA:** When the soft tissue in the back of the throat collapses during sleep, it interrupts breathing, sometimes 30 times an hour all night long—that's *obstructive sleep apnea*. Excess weight and smoking are risk factors. Less common is central sleep apnea, when the brain doesn't signal the body to breathe (often associated with congestive heart failure or stroke).

- **RESTLESS LEGS SYNDROME:** An intense urge to move your legs when you're at rest—in bed, taking a long drive, trying to relax—that can feel throbbing, creeping, pulling, and often irresistible. It affects 10 percent of the population, and certain medications, some chronic diseases, low iron levels, and pregnancy are all possible causes.

- **NARCOLEPSY:** Though it may seem exotic, millions of people have *narcolepsy*—a neurological failure to regulate normal sleep-wake cycles. Characterized by excessive daytime sleepiness and cataplexy (a sudden loss of muscle control often triggered by laughter or anger), it often begins between the ages of 15 and 25.

behind the wheel. If someone tells you that you snore loudly.

Luckily, improvement is usually easy—if the patient is willing to improve.

Chances are, you have a bad habit that's simple to fix. Do you like your afternoon Americano a bit too much? Try not to consume caffeine after, yes, noon—it can remain in your system up to 14 hours. "Just because you don't feel jittery doesn't mean it

has lost its effect," says Kristen Knutson, a biomedical anthropologist at the University of Chicago. Same with excess alcohol:

Though it may make you drowsy, it doesn't foster restorative sleep. Make sure the room is dark, quiet and cool, which mimics the natural lowering of body temperature at night. Hit the hay at the same time and perform the same bedtime routine—all week long, not just on work nights. "The brain and body do best when they know what comes next," says Watson. "They have no idea what weekends are."

Don't use your bed to stew about your day, because the brain will associate bedtime with restless rumination, turning sleep "into something to *do* instead of something that should *happen*," says Watson. Instead, give yourself time to unwind: drinking a cup of herbal tea, reading on the sofa, taking a warm bath, doing yoga, or watching a mellow television program (in a room other than the bedroom). If you're awake more than a half-hour, get out of bed and do something relaxing. "You don't want to train your brain to be awake in bed," says Grand-

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'We have to wake up to the idea that, with diet and exercise, sleep is the third pillar of good health.'

ner. "Then it will always be awake in bed." Just as important, resist the urge to bring your electronic devices with you. Scientists have known for a long time that exposure to light can suppress melatonin, a hormone that maintains the body's circadian rhythm. Translation: Any time you flip that switch, even for a moment, you fire up

your brain. Recent research shows that blue-wave light—the kind emitted from tablets, phones, computer screens, games—is a more potent suppressant than other wavelengths. When we bring gadgets into bed to watch movies or send one last email, we're stimulating our minds as we would during the day, just when we're supposed to

calm down. Says Krieger, "Removing technology from bedrooms is the biggest challenge we face with our patients."

But even after changing your sleep habits at home, you might still have a frustrating shortage—a sign of a more serious issue (see sidebar page 169). But don't reach for that sleeping pill yet: Many studies have shown that cognitive behavioral therapy is just as effective as prescription sleep aids, sometimes after as few as four half-hour sessions with a professional. CBT uses a combination of sleep restriction therapy (to make you more sleepy), stimulus control (leaving the bedroom when you're awake), and sleep hygiene advice (evicting all electronics from the bedroom). Your doctor may suggest a sleep study—like the one Clarence Ferguson had—which can diagnose medical problems such as apnea or restless legs syndrome, and prescribe treatments to remedy them, whether it's a CPAP machine that keeps your airway open, for apnea; or dietary supplements or medications to calm twitching limbs. You may simply need to change your lifestyle; as Watson points out, most apnea patients would improve significantly if they lost weight.

In the end, sleep experts are most concerned about getting out the word that good sleep is more than just a convenience or an indulgence—it's a biological necessity. But there's a long way to go. "I think we are in a place with sleep where we were with cigarette smoking 50 years ago," says Walker. For Clarence Ferguson—a man who didn't know anything about apnea or proper sleep habits before he sat down with Tihitina Demsash—his sleep study was an eye-opener. "Oh, I see, I see! Oh, I see!" he said each time she explained another habit, another connection. Says Walker, "We have to wake up to the idea that, together with diet and exercise, sleep is the third pillar of good health."

And, ultimately, there's actually a simple answer to a difficult problem. "The solution to sleep deprivation is so elegant," says Watson. "It's sleep. Go to bed earlier and sleep longer." ▲

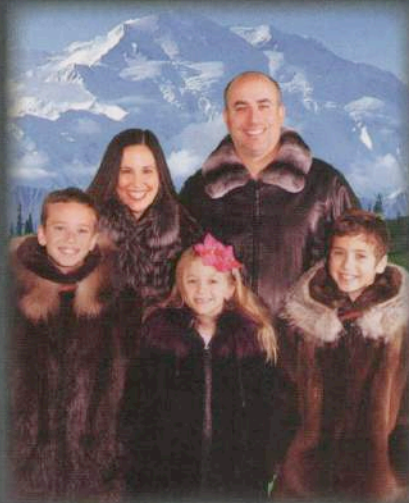
Evelyn Spence is a health and outdoor recreation writer based in Seattle.

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