

PERFORMANCE

BODY + MIND



Sleep Therapy

Banking extra z's—and other secrets of well-rested winners
BY DANIEL GRUSHKIN

■ IN THE 1995 ECO-CHALLENGE, adventure racer Robyn Benincasa and her teammates decided to complete the seven-day, 300-mile course without wasting time on sleep. “That,” she now admits, “was a bad idea.” By day three, during a 75-mile hike through the Utah backcountry, they’d turned into a stumbling pack of zombies. “We spent seven hours wandering in circles,” the 41-year-old recalls. “And then all five of us passed out in the dirt.”

There’s no way to cheat sleep: The longest a human has ever stayed awake under supervised conditions is 11 days. After just 16 hours awake, the brain centers that control attention, visual processing, higher reasoning, decision-making, and memory start to flicker on and off—the mental equivalent of a transmission popping into neutral without warning. Going 22 hours without sleep is like knocking back four shots of liquor: Reaction time dips 57 percent; hand-eye coordination, 31 percent; and memory, 10 percent. And after three days, as Benincasa learned, you’re out cold in the dirt.

Researchers are still in the dark about why we spend a third of our lives unconscious. Theories about sleep’s purpose range from memory consolidation to emotional processing to appetite regulation. We know getting enough of it helps us feel better, but scientists recently discovered it actually helps us *be* better too. In fact, sleep may be the greatest natural athletic enhancer. So read on, rest up, and conquer.

DEBT RELIEF

Consistently getting eight to ten hours of sleep a night is the best strategy, but Americans average an anemic six and a half hours nightly, according to a 2008 National Sleep Foundation poll. Even with a few eight-to-tens a week, the cumulative effects of those other nights you scrimped on rest add up. Over time, this deficit can lead to what scientists call sleep debt, a condition in which you’re chronically unrested. The promising news is that you can actually bank extra hours and eliminate even long-term debt, which translates into a serious competitive advantage.

Working with college athletes since 2005, Stanford University researcher Cheri Mah found that being debt free is key to peak physical fitness. As part of an ongoing study, Mah modified the sleep schedules of healthy students on Stanford’s swim and basketball teams for ten weeks; athletic performance was gauged after each regular practice. The students maintained their regular sleeping patterns for the first two weeks, then extended their sleep to ten hours a day for six weeks, which effectively cleared their debt, Mah says. During the last two weeks of the study, the students adjusted their own schedules to find their ideal sleep times. “Many of the athletes participating in this study have set new personal records, season-best times, and broken long-standing Stanford and American records,” Mah says.

But that doesn’t mean you should sleep your life away. Once your

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The Payback Plan

Cheri Mah modifies her get-out-of-debt sleep regimen for the 9-to-5ers.

WEEKS 1-2

ESTABLISH A BASELINE > Start by keeping a journal. Record bedtimes, rising times, any naps, and time spent tossing and turning at night; note your moods and alertness during the day. Whatever your activity, set base numbers (distance and time) to gauge fitness improvements.

3-8

PAY YOUR DEBT > Extend your sleep with a goal of ten hours a night. Try to nap each day at a set time. Avoid alcohol and caffeine before bed; both lighten sleep and lead to middle-of-the-night wake-ups. Continue charting your performance; expect marked improvements by weeks seven and eight.

TAPER > Now that you’re debt free, taper your sleep back to your normal schedule. Most people’s is 7-9 hours. Estimate how much sleep you need (mood, alertness) and wake sans alarm.

debt is cleared, you can perform optimally on a standard eight to ten hours a night. Luckily, Mah's sleep-extension plan is easy to follow outside the lab (see "Get Out of Debt", below left). And researchers speculate that the benefits may extend beyond athletic performance. "You can expect to see mood improvement, decreases in fatigue, and increases in energy," Mah says. "You'll see faster reaction time. Some individuals tell me they're even able to recover faster from injuries."

22

HOURS WITH-OUT SLEEP IS LIKE TAKING FOUR SHOTS OF ALCOHOL.

STIMULUS PACKAGE

The quick fix for more than 150 million Americans is caffeine, but coffee and Diet Coke offer little more than temporary relief. The pick-me-up from a shot of espresso kicks in about 20 to 30 minutes after you consume it, but your body's natural suppressants eventually build up and overtake caffeine's effects. A far more effective stay-alert system, scientists say, is taking short daily naps. Our bodies are hardwired for two windows of intense sleepiness every day: One falls between 2 a.m. and 4 a.m. during our natural nocturnal schedule, but the other strikes midday, from about 1 p.m. to 3 p.m. During this afternoon slump, the clock cells in your hypothalamus signal your body temperature to rise and then dip, mimicking the changes before bedtime that trigger sleep cravings.

For a light recharge, hit the pillow—or crawl under your desk—for 20 minutes, which is long enough to increase concentration, enhance mood, and fine-tune motor skills. If you're really fatigued, set aside a full 90 minutes to nap; that's about how long it takes your body to complete a full sleep cycle through five different stages, from light to deep to rapid eye movement (REM). Anything between 20 and 90 minutes and you risk coming out of deep sleep feeling groggy and disoriented.

Napping may also help consolidate and improve motor memory. A Harvard Medical School study last year found that the best way to cement a new complex motor skill, such as crack climbing or whitewater paddling, may be a morning lesson followed by an afternoon nap.

Clinical psychologist Michael Breus, Ph.D., diplomate of the American Board of Sleep Medicine, recommends a novel way to combine the benefits of caffeine and naps. "I call it a nap-a-latte: Drink a cup of coffee, then take a 15-minute doze. The nap removes sleep pressure, and the caffeine immediately picks you up when you wake."

Benincasa plans to use a similar technique from here on out. "If I can lie down for 20-minute increments, I can function for another two hours before I lose it again," she says. "The real race starts 75 percent through—just when everyone else is destroyed, you start mowing them down because you've prepared with enough sleep."

9-10

TAPER > Now that you're out of debt, find your sweet spot. Most people's is between seven and a half and ten hours. Estimate how many hours you need based on impressions (mood, alertness) and evidence (performance). You should wake sans alarm clock. Tweak until performance is optimal.



PERFORMANCE



Little Helpers

What to consider when counting sheep won't cut it

THE Rx	PROS AND CONS
PRESCRIPTION DRUGS	<p>Benzodiazepines (Halcion, Restoril) are tranquilizers that suppress the firing of neurons. "They're essentially knock-out pills," says clinical psychologist Michael Breus, Ph.D. "You pass out, but you never reach deep sleep." And they can be addictive if used long-term.</p> <p>Nonbenzodiazepines (Ambien, Lunesta, Sonata) are fairly new drugs that target the same sites in the brain as benzos but don't alter the sleep cycle. Plus, they aren't physically addictive.</p>
HERBAL OVER-THE-COUNTER AIDS	<p>Melatonin is a naturally occurring hormone that, when taken supplementally, fools your circadian clock into switching on the sleep cycle. It's great for jet lag, but "it's a no-no for girls under 18," Breus warns: Melatonin levels affect the onset of puberty.</p> <p>Valerian plant root, now available in capsule form, was used to treat insomnia by the ancient Greeks. No one's quite sure how it works, but it's been shown to promote regular sleep. "We think it's hitting the same sites as the benzos," says Breus.</p>
NATURAL REMEDIES	<p>Exercise releases relaxing chemicals like endorphins that help you fall asleep faster. And the physical strain causes your brain to increase the amount of time you spend in deep sleep, when your body repairs itself.</p> <p>Hot showers raise your core temperature, which imitates melatonin's natural effects and makes you sleepy.</p> <p>Warm milk (or any dairy product) contains tryptophan, an amino acid that the body processes into melatonin and serotonin—both sleep inducers. Oats and bananas are good tryp sources too.</p>

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