

By [Peter S. Green](#) • October 20, 2015 at 12:01am

Sleep deprivation during military deployment is archaic, harmful and institutionally unavoidable. It may aggravate, and even cause, PTSD in veterans returning from combat. Why's it taking so long for military brass to take action?

## Sleeping Soldier in Tank

Getty Images

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“In peace and war, the lack of sleep works like termites in a house: below the surface, gnawing quietly and unseen to produce gradual weakening which can lead to sudden and unexpected collapse.” —Major General Aubrey Newman, *Follow Me*, 1981

**THROUGH THE LONG SUMMER OF 2008**, U.S. Army Corporal Sean Bedingfield led a fire team at a dust-choked combat operations post in the craggy terrain of [Kunar](#) province in northeastern Afghanistan. His platoon was five men short of its full 32-person complement, and would catch incoming fire several times a day from Taliban insurgents in the surrounding hills. Full-day patrols sent Bedingfield and his squad 3,000 feet or more up into the mountains, and another 3,000 feet back down to their camp. At night, they stood watch to ward off insurgents. Often, they'd double-staff the watchtowers to ensure no one fell asleep.

“If one guy dozed, the other's job was to slap him around to wake him up,” Bedingfield said in a telephone interview from his home in Fitzwilliam, New Hampshire. With constant incoming rocket, mortar and small-arms fire, the result was a platoon always on edge, always groggy. “If I could get three, four hours [of sleep] a night, that'd be the most I'd ever see,” Bedingfield, now discharged, said.

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This special report is available for download as a PDF ([here](#)) or a free ebook on the iTunes store ([here](#)).

The toll on his body and brain was steep. Coming home with a traumatic brain injury, shrapnel wounds and knee pains, Bedingfield found himself on a laundry list of drugs. He said he was taking Clonidine for blood pressure and suffering residual effects from the antimalaria drug [Mefloquine](#), which can cause horrific nightmares, delusions and sleepwalking. He was also on antipsychotic medication and two different amphetamines to wake him up every morning.

“It was terrible, absolutely terrible,” Bedingfield said. “Sleep isn't very much regarded by the Army.” He was discharged with a 70 percent disability in 2012, and the local Veterans Affairs hospital, he says, was unable to help him restore his mental health.

As the longest war in U.S. history drags through its 13th year, America's armed services are discharging an increasing number of soldiers with serious sleep problems. Exact numbers are hard to lock down, but the RAND Corporation found earlier this year that 48.5 percent of servicemembers reported such poor sleep quality, it would qualify as a "clinically significant sleep disturbance" on the Pittsburgh Sleep Quality Index. With roughly two million U.S. veterans of the wars in Iran and Afghanistan, that means some 900,000 active or retired servicemembers may have significant sleep disturbances or sleep disorders.

According to Dr. Vincent Mysliwiec, the Army's top sleep specialist at Fort Hood, Texas, the Army alone reported a 19-fold increase in insomnia from 2000 through 2009. "If this was anything else, it'd be labeled an epidemic," he told a conference of sleep specialists in Seattle in June.

He added, "Insomnia is the signature illness of military service."



Getty Images

## No Sleep 'Til Discharge

More so than even the amputations and traumatic brain injuries that have come to define the Afghanistan and Iraq wars, insomnia is the hidden wound that America's warriors are bringing home. It's largely unnoticed, under-prevented and untreated.

It's also the single most important factor, say military sleep researchers, for treating the post-traumatic stress disorders (PTSD) that plague America's returning veterans, keeping them on meds and out of work and preventing them from enjoying a normal life.

A review by two sleep researchers in Pittsburgh showed that 54 percent of the two million Americans who've served in combat since September 11, 2001 have insomnia. That compares with about 22 percent of civilian adults. Soldiers who suffer from insomnia while deployed have a greater chance of developing depression, suffering from PTSD and even committing suicide, wrote Dr. Adam Bramoweth of the Department of Veterans Affairs Pittsburgh Healthcare System, and Dr. Anne Germain of the University of Pittsburgh School of Medicine.

It's not a simple matter of prescribing sleeping pills and telling veterans to resume their "normal" lives. Like other shift workers, members of the military frequently exhibit what Dr. Nita Shattuck, the U.S. Navy's chief sleep researcher, calls "circadian scarring," a serious, potentially long-term disruption of our natural sleep patterns. To combat this damage, many "binge-sleep" in an attempt to make up for lost sleep.

"If we don't treat sleep disorders, we can't treat PTSD. We have to attack them together."

But binge sleeping contributes to circadian scarring and doesn't pay back the so-called "sleep debt" incurred by the chronically sleep-deprived, says Shattuck. "People think they can recover from this in a day. But the circadian scarring, the long-term chronic exposure to sleep deprivation, actually changes their ability to benefit from sleep opportunities."

#### "A Sea Change in Shipboard Watchstanding"

The root of veterans' chronic insomnia, and the PTSD that often develops alongside it, isn't a disorder that can be cured as part of their post-discharge adjustment. It's a symptom of larger problems that begin during deployment itself. The military indoctrinates healthy American adults into a "culture of sleep deprivation" that persists throughout their careers, says Shattuck, who works at the Naval Postgraduate Center in Monterrey, California. She says that deprivation hampers their performance and creates long-term health problems.

While the military recognizes that sleep is mission-critical — in 2012, the Army's top health official, Surgeon-General Patricia Horoho, unveiled a new set of health priorities that she dubbed the "performance triad" of sleep, activity and nutrition — changes have been slow to come for boots-on-the-ground servicemen and -women.

In fact, sleep deprivation is so widespread in the Navy that Shattuck says it's as though a giant scientific experiment is being staged in front of her.

## Hurry Up and Sleep

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When it comes to the military and sleep, there is a clear paradox at work. Soldiers, particularly those in active war zones, must be ready to fight at any moment. But the longer they're kept on alert without regular, high-quality sleep, the less ready they are to fight.

On paper, sleep is a priority; in practice, not so much. Military regulations instruct commanders to ensure troops get a good night's sleep, and they split soldiers into teams for nighttime fighting forces and daytime fighting forces. Sleep and rest are allocated like "rations, water, equipment and ammunition," the U.S. Army Field Manual recommends, adding that soldiers require seven to eight hours of "good quality sleep" every 24 hours "to sustain operational readiness."

"The longer a Soldier goes without sleep," the manual notes, "the more his thinking slows and becomes confused, and the more mistakes he will make."

Army 2009 Field Manual FM 6-22.5

Acknowledging that's not enough to keep troops in fighting form, the guidelines further suggest that soldiers be allowed to nap whenever possible. "Taking naps is not a sign of low fighting spirit or weakness," the manual advises. "It is a sign of foresight."

But in many units, soldiers are only getting as little as five hours of sleep a night. Veterans talk of sleep deprivation used as a training tool in boot camp, and later as punishment for errant soldiers, even when they're in life-or-death situations or on the front lines of war.

"There is just an old cultural idea that you only need four hours of sleep, and I am devoting my career to trying to kill it."

"If you restrict healthy human subjects to four to five hours a night for four or five days, they function at the same level of impairment as if they were legally drunk," says Dr. Wendy M. Troxel, senior behavioral and social scientist at the RAND Corporation, a nonprofit think tank that provides research and analysis to the American military.

Seeming drunk is the least of the military's problems. In 2014, 34-year-old Army Specialist Ivan Lopez killed four and wounded 14 in a shooting rampage at Fort Hood. Lopez had been deployed to Iraq and was suffering from sleep disturbances, anxiety and depression.

A public version of the Army's investigative report on the incident, which ended when Lopez shot himself with a personal .45-caliber handgun, blacked out information about the drugs he was taking. But it was reported elsewhere that Lopez was taking Ambien and antidepressants at the time of the shooting.

The report concluded that no "single event or stressor, in isolation, was the cause of the shooting," but Lopez had been under stress from a variety of family problems. On the day he snapped, he had difficulty getting leave to move his wife and a child to Fort Hood. The report also cited sleep as a contributing factor.

Similar tragedies have occurred during deployment. In 2003, Sgt. Hasan Akbar killed two officers in a grenade attack on his own camp in Kuwait. According to his lawyers at his 2005 court martial, Akbar suffered from insomnia and sleep disorders before he turned on his comrades.



## “Sleep Is for the Losers”

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Armies have been going without proper rest since the beginning of time, many adhering to the mantra that tough guys don't need sleep.

“As an infantryman, not being able to stay awake is a weakness,” said Bedingfield, the sleepless corporal. “It's inherently ingrained in our little society's hard wiring.”

To stay awake — despite the arduous patrols and constant incoming fire — Bedingfield and his fellow soldiers had access to plenty of options to keep them awake, including Rip Its, a canned energy drink. If that didn't work, he said, “you could take the coffee packets from your [meal packs] and put them in your lip, like a dip, and stay awake.”

Greg Papadatos is a New York City paramedic who served several tours in Iraq.

“I bought Starbucks double-shots by the case,” he said in an interview in Manhattan.

“Mountain Dew in 20-ounce bottles and Red Bull were everywhere. [But] is it wise to drink a six-pack of it each day? We had people doing that.”

Occasionally he'd see soldiers using cocaine or home-brewed crystal meth to stay awake (see sidebar, “Drug Use in the Military”).

### Drug Use in the Military

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The military has little reliable data on hard drug use by combat troops. The Pentagon's most recent survey of substance abuse, taken in 2011 and released in 2013, shows fewer than one percent of troops reported cocaine use. The questionnaire didn't ask about crystal methamphetamine, and it didn't break out soldiers in war zones. [Army documents](#) obtained by the Associated Press and conservative watchdog Judicial Watch showed the U.S. Army investigated 56 soldiers in Afghanistan on suspicion of using or distributing heroin, morphine or other opiates during 2010 and 2011. Eight soldiers died of drug overdoses during that time.

This abundance of stimulants only made winding down harder. Indeed, soldiers in war zones become [hyperaroused](#), a state that's almost impossible to turn off. Despite being dead on their feet, so to speak, many soldiers suffer from insomnia in the field.

“You're always on guard, always suspicious of anyone coming up to you or next to you,” said Steve Young, a now-retired Army staff sergeant who served in Iraq from 2005 to 2006. He served on guard and escort duty, and as a trainer for Iraqi troops, at Camp Cedar 2, a 20-square-mile air base at Ur, the mythical birthplace of the biblical patriarch Abraham.

“Even when you're trying to sleep or on rest days, you were always on alert,” he explained.

Bedingfield says some soldiers in his unit were prescribed zolpidem, the sleeping aid commonly known as Ambien. Others used the muscle-strain reliever [Flexeril](#), which packs a hefty knockout punch.

But medics in Iraq were loath to prescribe sleeping pills, which can lead to depression and

leave soldiers groggy even when under attack. Papadatos said he only gave soldiers Ambien a half-dozen times in a yearlong deployment. Instead, he'd offer over-the-counter allergy pill Benadryl, which leaves users drowsy but not incapacitated.

"The Army works on the assumption that everyone is in the prime of health and can go without sleep, whether you can do it or not," says Papadatos. "Sleepiness is used as a punishment in basic training: The mindset is, sleep is a luxury; if you sleep more than four hours, somebody is doing you a favor. Sleep is for the losers."

The Army's traditional "hurry up and wait" methods only made things worse. When Young's unit arrived at Cedar 2, he and another sergeant were getting about two to three hours of sleep a night as they worked to take over from the team they were replacing. This isn't uncommon, as troops scramble to get assets in place on short notice.

Even when his soldiers were finally prepped and ready for action, sleep still wasn't guaranteed.

"They put us in little jobs where we had nothing to do, and our brains said, *What?*"

"We tried to... get enough sleep," Young said, "but we would get shelled or other things were going on. You could be off duty or asleep or at the USO and the next thing you know, you get the alert and everyone's running for cover."

A soldier's sleeping quarters are no refuge. Young's tent sat next to a half dozen ear-splitting five-ton diesel generators that supplied power for the base, and it had bunks for some 20 people. The lights were always on, with soldiers and airmen constantly coming and going on different shifts. Young used headphones to try to mask the noise with music, but it helped little. Whatever sleep he did get wasn't good enough to refresh his brain.

"You did your hours, and you'd go into the tent to try to get some sleep so you can get up in the morning," Young said. He didn't get many of those hours, and by the time he time was rotated back to Fort Bliss, in Texas, Young had chronic insomnia.

"You don't really think about sleep when you're there. You're pretty much on mission, and that's all that matters, is the mission," he said.

Back home near Dallas, Young now gets, at best, four to five hours of sleep a night. He's unable to work, and he's battling backlogged Veterans Affairs for treatment for a career's worth of injuries, including chronic issues from a parachuting accident and traumatic brain injury caused by an incoming artillery round in Iraq.

"If I can just get to the point of getting enough sleep, I can deal with the body aches and pains," Young said by phone. "It's trying to get enough sleep so you're not jumping at everything that moves."

## Weaponized Sleep Deprivation

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The Army is fully aware of the dangers of chronic sleep deprivation. In fact, the Army's 1992 field manual for interrogation (known as document FM 34-52, Intelligence Interrogation) specifies that, "Examples of mental torture include...abnormal sleep deprivation" alongside "mock executions" and "chemically induced psychosis."

The manual's next edition (Field Manual 2-22.3, Human Intelligence Collector Operations) — published in 2006 after U.S. troops were revealed to have tortured prisoners at the Abu Ghraib prison in Iraq — makes no such mention. ("Chemically induced psychosis," too, was removed as an example of mental torture; the term makes no appearance in 2-22.3.)

"Fatigue is a weapon," says Dr. Nicholas Davenport, a retired U.S. Navy captain who introduced the Fatigue Avoidance Scheduling Tool to naval aviators in 2001 while he was the Navy's chief flight surgeon. "If a commander is smart, he maximizes fatigue in the enemy and minimizes it for his own unit."

Therein lies the problem. Military brass clings to outdated traditions and the obsolete assumption that sleep is for the losers. The cost of these assumptions is great.

On the night of February 5, 2009, the U.S.S. Port Royal began a shakedown cruise after repairs in the dry docks at the Pearl Harbor naval base. When its satellite navigation system failed and the *Port Royal* switched over to a gyroscope, the 567-foot-long guided missile cruiser found itself a mile and a half from where the crew thought it was. In moments, the ship was aground.

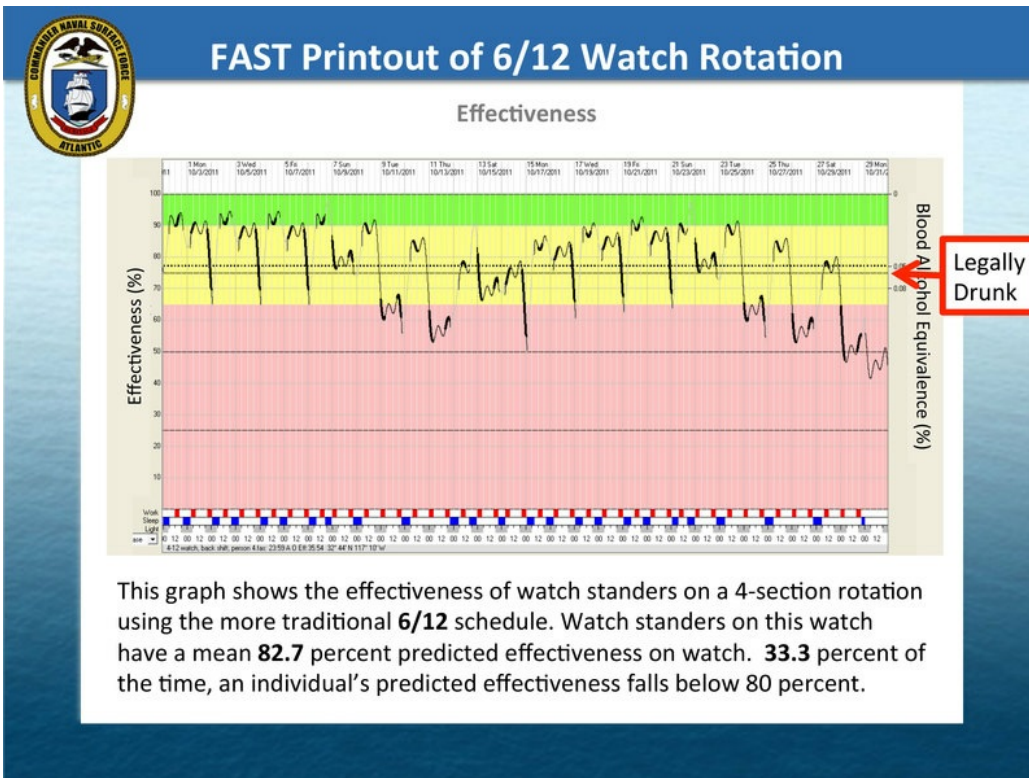
A Navy investigative report, leaked to the Honolulu Advertiser, blamed the grounding on a "sleep-deprived skipper," along with faulty equipment and an inexperienced team on the ship's bridge. Damage to the *Port Royal*, stuck for four days on a coral reef off Honolulu airport, and to the reef itself, cost the Navy \$55 million.

Capt. John Carroll, the *Port Royal*'s skipper, had caught only four and a half hours of sleep in the previous 24 hours — and only 15 hours of sleep over the previous three days — as he pushed to get the ship under way after the repairs.

Fatigue may also have been a factor in the 2012 collision between the *U.S.S. Porter*, a guided-missile cruiser, and a Japanese supertanker near the Strait of Hormuz, according to the Navy's Dr. Shattuck.

In aviation accidents, investigators track a pilot's sleep patterns as far back as 14 days to look for evidence of fatigue. When looking at mishaps aboard ships, Naval investigators are less cognizant of the dangers of fatigue, often attributing accidents to complacency, lack of training, disinterest and "inadequate assessment of risk," Davenport said in an interview.

They rarely dig deeper, he said, to ask about the root cause — often fatigue.



From *A Sea Change in Shipboard Watchstanding: Improving Watchstander Resilience*, prepared by Captain John Cordle, USN, and Dr. Nita Shattuck

"Working sleep-deprived, being macho and able to tough it out with very little sleep is part of the culture," said Davenport. The problem, he noted, is that sleep-deprived sailors are significantly more accident-prone.

A study by Shattuck showed that one-third of the time, the response speed for sailors on an 18-hour watch bill (six hours on, 12 hours off) was the same as if they were legally drunk

In the wake of the *Port Royal* grounding, Carroll was demoted and eventually left the Navy. The service began taking a closer look at how it could avoid fatigue-driven accidents. In the past five years, five of the 31 so-called Class A incidents in the Navy (where damage totaled more than \$2 million or a life was lost) cited fatigue as a contributing factor, according to data collected by the Naval Safety Center in Norfolk, Virginia, and obtained by *Van Winkle's*.

Curiously, the *Port Royal* was a subject of a 2008 study of shipboard fatigue by Navy Lt. Derek Mason, who found its officers and crew were not getting the sleep they required. Mason found that the Navy's watch patterns were wreaking havoc on sailors, whose bodies were naturally fighting to stay awake and maintain alertness during daytime sleep periods, and he noted they often failed to reach rejuvenating, mission-critical REM sleep stages.

"This break in routine leaves a person feeling fatigued and tired, despite sleeping for six to eight hours," he wrote.

## Asleep at the Keel



Shift work, and the changing schedules that the Navy imposes on sailors at sea, is exhausting and ultimately works against the mission.

“If you’re working an extended day, longer than 24 hours, and your sleep is not on a predictable schedule from day to day, your performance is degraded,” Shattuck said. For sleep-deprived sailors, reaction time is as much as 25 to 30 percent slower — a life-or-death difference in combat situations, said Shattuck.

John Cordle, a now-retired Navy captain, was one of the first surface officers to attempt to fix the Navy’s traditional “five-and dime” watch system, which puts units on duty for five hours and off for 10. Because it’s based on 10-hour units — not our natural 24-hour clocks — this system leaves sailors fatigued and disoriented.

Posted on: Tuesday, July 7, 2009

## Hawaii-based ship’s grounding detailed

By William Cole  
Advertiser Military Writer

A misinterpreted navigation system, a sleep-deprived skipper, faulty equipment and an inexperienced bridge team led to the grounding of the Navy guided missile cruiser *Port Royal* on the night of Feb. 5, according to a Navy Safety Investigation Board report.



He explained, “If today you work a 10 p.m. to 3 a.m. shift, tomorrow you’ll be working 1 p.m. to 6 p.m., then working from 4 a.m. to 9 a.m. Your sleep cycle gets all out of whack.”

Cordle speaks from experience. He was on the bridge, commanding the *U.S.S. Oscar Austin*, a guided-missile destroyer, in early 2001, taking the ship through the Kattegat, a strait north of Denmark, transiting from the North Sea to the Baltic. He’d been up for 24 hours straight when the bridge team lost track of its course.

As Cordle tells it, he’d fallen asleep on his feet. “I woke up to chaos and realized the ship was in danger of running aground. All I could do was order a full stop until we figured out where we were.”

The near collision woke Cordle up to the real threat sleeplessness could pose to a ship and its crew. A ship’s commander has a great deal of autonomy; on his next command nine years later, helming the guided-missile cruiser *U.S.S. San Jacinto*, Cordle tried changing the watch schedules. Taking cues from the Dutch Navy, Cordle put his sailors on a three-and-nine schedule that better fit the human body’s natural preferences.

The Navy has yet to adopt this 12-hour-based system fleetwide, but the submarine force, where sailors don’t see the sun for three months at a time, is making changes. The old routine for undersea mariners was based on an unwieldy 18-hour day (six hours on, 12 hours off); the new three-and-nine better matches the sailors’ biological clocks.

Cordle is also teaching Navy officers how to use watch schedules to improve their ships' performance and safety. With Shattuck, he developed Crew Endurance, a website to educate commanders on the new watch system.

"We are trying to convince the Navy senior leadership that they need to stop doing this," Shattuck said of the irregular watch schedules that disturb sailors' circadian rhythms. She noted that most of the world's navies keep their sailors on a watch system of four hours on, eight hours off.

So far, Cordle and Shattuck are being greeted with mixed reactions to their circadian watch schedules.

Navy brass were reluctant to speak about plans for changing the watchbill, though a spokesman for the U.S. submarine fleet, Commander Tommy Crosby, said that, in March, submarine commanders were ordered to implement a circadian watch rotation, giving each crew member "adequate protected sleep" at about the same time during each 24-hour day.

Several spokespeople for the Navy's surface fleet command either said they were unable to get comment, or they failed to respond to multiple phone calls and emails.

"At the junior levels, the people who have done it, they like it and will take it with them to their next ships," Cordle said. But the admirals are harder to convince. "If you are at command level and never saw this before, it's generally too out-of-the-box to consider."



# Getting the Brass in Gear

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There are some in the Army who, like Cordle and Shattuck in the Navy, are pushing for scheduling reforms.

Lt. Col. Ingrid Lim is a psychologist and a 20-year Army veteran who has served in Iraq and Afghanistan. She's leading the Army's efforts to ensure that all commanders — from Pentagon desk jockeys to squad leaders in Afghanistan — prioritize their troops' sleep.

Officially, Lim's title is "Sleep Lead, System for Health and Performance Triad, Health and Wellness Directorate G-3/5/7, HQDA Office of the Surgeon General," but she's learning to rely more on persuasion than rank to make her point.

"Sleep is probably the most challenging of all of the things to change, because we tend to value a lack of sleep, not just in the Army but culturally," Lim said. "We push ourselves to work all hours of the night — we own the night, we operate at night. I tell the commanders, 'Yes, you operate at night, but we need to let our guys recharge.'"

Lim concedes that getting more than a half-million soldiers, and another half-million troops in the National Guard and Army Reserve, to change their sleep habits is a long-term effort. She likens her campaign to the society-wide adoption of childhood vaccines or how, decades ago, dentists had to convince their patients to floss daily.

"There is just an old cultural idea [in the military] that you only need four hours of sleep," she said, "and I am devoting my career to trying to kill it. We need to change the regulations, change policies, change what we teach, how do we get people to change their behaviors. ... When they think of security, they [must] think [of] who needs to sleep."

There's yet another factor at work. The military has moved away from micromanaging its units' off-duty time (with, for example, curfews and lights-out orders). Off-duty soldiers are now free to play video games, Skype with friends and family 10 time zones away and do whatever else they want. This is good for morale, but not so great for sleep.

Compounding the problem even further, soldiers are, by and large, kids, Shattuck noted. For example, the average Marine Corps recruit is 20-years-old, according to the Corps' Recruitment Command. That's an age at which most men and women are still establishing their sleep patterns. The military's skewed sleep schedules leaves them open to worse circadian scarring.

"They can be carrying around significantly more sleep debt than the [older] adults next to them," Shattuck said.



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pleasure.

Examples of physical torture include—

- Electric shock.
- Infliction of pain through chemicals or bondage (other than legitimate use of restraints to prevent escape).
- Forcing an individual to stand, sit, or kneel in abnormal positions for prolonged periods of time.
- Food deprivation.
- Any form of beating.

Examples of mental torture include—

- Mock executions.
- Abnormal sleep deprivation.
- Chemically induced psychosis.

Coercion is defined as actions designed to unlawfully induce another to compel an act against one's will. Ex-  
amples of coercion include

**5-75. If used in conjunction with intelligence interrogations, prohibited actions include, but are not limited to—**

- Forcing the detainee to be naked, perform sexual acts, or pose in a sexual manner.
- Placing hoods or sacks over the head of a detainee; using duct tape over the eyes.
- Applying beatings, electric shock, burns, or other forms of physical pain.
- “Waterboarding.”
- Using military working dogs.
- Inducing hypothermia or heat injury.
- Conducting mock executions.
- Depriving the detainee of necessary food, water, or medical care.

**5-76. While using legitimate interrogation techniques, certain applications of**

Top: Sleep deprivation defined as mental torture, from the Army's 1992 Intelligence Interrogation manual, FM 34-52; Bottom: No restriction on sleep deprivation during interrogation in the Army's 2006 revised manual, FM 2-22.3.

## The Hard Way Back

Increasingly, the military is learning that the problems don't end at discharge. It's well documented that prolonged sleep deprivation can cause serious, sometimes irreparable, damage in the average adult. It's no different for vets.

“Once sleep problems begin, and if they persist for a couple months, it’s very difficult to stop that train from becoming chronic unless you receive treatment,” said Dr. Troxel, who co-authored the RAND report.

When he got back from Iraq, Steve Young, the retired Army staff sergeant, was assigned to ferry new recruits around a basic training camp at Fort Jackson, near Columbia, South Carolina. His life, he thought, should have returned to “normal” civilian routine. Instead, assigned to ferry recruits around the base, he found himself waking up in his van, parked on the side of the road, with no memory of his decision to stop and take a nap.

“I never had a problem in theater,” he said, where “all the adrenaline...just keeps you up... Once you come back home and everything is trying to die down, and you try to get back to civilian life — that’s when all that you’ve been doing starts to hit you and you feel the effect of it.”

Jacob Hansel is a Marine Corps weather forecaster who deployed to Iraq twice, in 2010 and 2011. His 12-person unit had just four trained forecasters, leaving Hansel and his three colleagues to pull long shifts, analyzing floods of raw data, then telling helicopter pilots if it was safe to fly and generals and platoon leaders how to avoid sandstorms.

The pressure was intense. “If we get a forecast wrong, someone dies, and we can go to jail. We can’t mess up,” Hansel said. But his understaffed unit was often pulling 24-hour shifts, then unable to get a decent night’s sleep before the next duty.

“When you’re tired, it’s a lot harder to think in three dimensions,” he said. For example, “What will the storm do when it hits the mountains?”

As with many soldiers, living in a war zone switched Hansel’s body to survival mode, and his brain slowly atrophied from a lack of rest. Back in the states, Hansel explained in an interview, “we went from work-work-work to nothing.”

That’s when Hansel’s sleep problems began. He was diagnosed with ADHD and major depression from working so many hours and not sleeping. A year later, he was diagnosed with bipolar schizoaffective disorder and began seeing doctors and therapists regularly.

“I never had any of these problems when I was growing up. Now it’s been two or three years without proper sleep, they are still trying to figure out what’s wrong.”

He now describes his deployment as “two years of a manic state.” Civilians may imagine soldiers feeling great relief when they return home, and this is largely true. But they cannot simply turn off their senses; being on a constant state of high alert becomes routine.

Back home, Hansel said, “all of a sudden, they put us in little jobs where we had nothing to do, and our brains said, *What?*”



Many troops return home from combat without a spouse or a family to welcome them. Having grown accustomed to the social support of wartime camaraderie, they find themselves lost and approaching psychological tipping points. According to RAND's Dr. Troxel, their inability to sleep properly can push them over the edge, causing them to harm themselves.

"Sleep deprivation has been identified as a critical risk factor for completed suicides," Troxel said. "You just can't see the forest for the trees, you are just so mired in desperation for sleep, and imagine every night is fraught with nightmares and re-experiencing what you experienced in war. The one place you are supposed to restore and rest is taken away from you."

Soldiers getting less than six hours of sleep a night were more than three times as likely to have attempted suicide, compared with soldiers resting more (and better), according to a 2011 study cited in a RAND report. And, in a 2012 study of 381 veterans, those with poor sleep who committed suicide did so about 100 days sooner than those who did not report sleep problems.

"Sleep problems are an independent predictor of suicidality," the RAND report noted, not just a side effect of mental health disorders such as depression.

Thankfully, some cases are easy to resolve. Shattuck recently worked with a sailor who'd been on five-and-dimes while at sea; he was unable to sleep or adapt to a 24-hour routine when he returned to shore.

"His circadian rhythm was injured," Shattuck said. She recommended a sunlamp and melatonin — and the sailor was on a normal schedule within two days.

## Exploring New Treatments

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Light bulbs and hormones won't work for many serious cases. As an alternative to traditional drug therapies, the VA is training social workers and psychologists in a behavioral treatment known as Cognitive Behavioral Therapy for Insomnia, or CBTI.

The CBTI treatment shows promise for some chronic insomniacs, said Dr. Wilfred Pigeon, a psychologist with the Veterans Affairs suicide prevention center in Canandaigua, New York. In CBTI, patients are guided through mindfulness exercises in an effort to retrain their brains to accept restful sleep.

Pigeon's research also shows that veterans with sleep problems are more likely to commit suicide. PTSD and sleep problems have what Pigeon calls a "bidirectional" relationship. "If I'm not sleeping well, then my PTSD symptoms might be more severe, and if I have PTSD, that can't help but affect my sleep."

The treatment is controversial, with some psychologists saying that it merely masks the symptoms by training patients to ignore them, creating a ticking bomb of stress that will eventually explode.

Patients with chronic insomnia develop a variety of what psychologist and CBTI proponent

Simon Rego calls “unhelpful” thoughts and behaviors, which rev up emotions and actually maintain the insomnia they’re trying to get rid of. With CBTI, psychologists use a five-part treatment that includes relaxation training and sleep hygiene to treat patients.

“If we know that people develop problematic behavioral patterns — dysfunctional beliefs and attitudes about their sleep — then maybe we can have a systematic set of procedures that one-by-one counter these perpetuating behaviors and bring the cycle back on track,” said Rego, director of the cognitive behavioral training program at Montefiore Medical Center/Albert Einstein College of Medicine in New York.

When it’s successful, CBTI can replace many drug therapies for insomnia. “It’s not as easy as prescribing a medication,” said Rego, “and there are many more people trained to prescribe pills than to do CBTI. But the upside is, you can do it in two to four visits and the skills can be there for the rest of your life.”

Whether it’s CBTI or another technique, behavioral therapy might have helped Jacob Hansel, the Marine Corps weather forecaster. After returning from his last deployment, he spent months unable to sleep. At his wife’s urging he visited a Veterans Affairs hospital in New Hampshire, where he was given a two-week trial of Ambien. It didn’t help.

“I’d fall asleep and wake up after two hours,” Hansel said. His doctor sent him for a psychological evaluation, where he was diagnosed with “major depression, and adjustment disorder” — not uncommon for returning veterans. After a few months, a civilian doctor diagnosed him with ADHD and put him on an antidepressant prescribed off-label as a sleep aid.

“Sleep problems can predict the onset of downstream mental health problems, including PTSD, depression and suicide.”

“They put me on Trazidone for sleep, and I was on Prozac and all that happy SSRI crap for a while,” he said, referring to another kind of antidepressant, Selective Serotonin Reuptake Inhibitors (SSRIs). “After a couple months, I had a reaction to the Trazidone, so I couldn’t breathe through my nose and was waking up at night.”

On the Prozac, he gained 30 pounds in a month, a weight gain that could have forced him out of the service. Ditching the SSRIs, he was put into psychotherapy and prescribed Adderall to stay focused on work and Tamzipan to help sleep.

“As long as I did a lot of work during the day, I was okay. But if not, my mind wouldn’t fall asleep,” he said.

The drugs took a toll and, when he tried to extend his enlistment, the Corps turned him down, he said. Devastated, for several months again he couldn’t sleep, finding his whole world had “fallen apart.” By the time he’d retired and sorted out his medical insurance and care, he was diagnosed with “atypical psychosis.”

Hansel was put into therapy again, and prescribed an SNRI, or serotonin–norepinephrine

reuptake inhibitor, another class of antidepressant that's also used for anxiety and ADHD. Yet another cycle of sleeplessness forced Hansel to be hospitalized and taken off his medication.

Now, he says, he's on Quetiapine, an antipsychotic; Lamotrigine, a mood stabilizer; and Neurontin, a strong anti-anxiety medication.

"When I'm not being bipolar, I'm schizophrenic," he said. Once, suffering from a delusion, he nearly beat up his younger brother.

"I never had any of these problems when I was growing up. Now it's been two or three years without proper sleep, they are still trying to figure out what's wrong."

## Destructive Bedfellows

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"For a long time, sleep problems were thought of as something that went along with mental health symptoms," said RAND's Dr. Troxel. "We now know that sleep problems can predict the onset of downstream mental health problems, including PTSD, depression and suicide."

Speaking at the 2015 SLEEP conference in Seattle, Dr. Mysliwiec said, plainly, "If we don't treat sleep disorders, we can't treat PTSD. We have to attack them together."

For his patients, Mysliwiec employs a combination of rest, drugs and psychotherapy, along with continuous positive airway pressure (CPAP) devices. CPAP masks provide a steady flow of lightly pressurized air to patients who suffer from sleep apnea, an obstruction of the airways that continually wakes sufferers in the middle of the night.

Chronic obstructive sleep apnea is one of the most prevalent causes of insomnia among active-duty service members, Mysliwiec says, as it's aggravated by the stresses of deployment. While masks and other devices can help the problem once it's diagnosed, identifying and addressing sleep deprivation early is critical.

At the SLEEP conference, Mysliwiec spoke of successfully treating thousands of active-duty soldiers for sleep disorders. "You'll see individuals with [traumatic brain injuries] and PTSD," he said, "and they'll have an amazing response" — but only once their insomnia is treated.

It should be common sense that chronic sleep deprivation will lead to insomnia, which will exacerbate, or even cause, post-traumatic stress for our returning veterans. As Troxel put it, "Anyone who's experienced sleep disruption for extended periods of time — your frustration tolerance is lower, and you're more likely to snap."

At the Army's Medical Research and Materiel Command at Fort Detrick, Maryland, Jaques Reifman, a senior research scientist, and his team have developed a smartphone app, [called 2BAAlert](#), that can measure soldiers' alertness based on how much sleep they've had and their caffeine consumption.



The Army's 2BAlert smartphone app, currently in development.

"We came up with formulae that allow us to mathematically capture how individuals perform when they are sleep-deprived, and when they take some kind of countermeasures such as caffeine," Reifman said.

The app runs soldiers through a series of 25 tests that measure reaction time in order to establish a baseline for each soldier. He says his team hopes to have it ready for beta-testing by the end of the year, and soon thereafter ready for the frontlines with Lieutenant Colonel Lim's help.

The Army is also looking for commercial partners to develop the app for non-military purposes.

But to fundamentally improve the sleep habits of two million service members — and deal with the aftereffects in millions more veterans — cultural and institutional barriers must be overcome. This will only happen with support from both top brass and boots-on-the-ground units.

"It's one thing to say, 'Hey this is what's going to happen, and we may do a lot of strategic thinking,'" said the Army's Lieutenant Colonel Lim, who's in charge of rolling out the sleep changes. "But to get change to occur, a lot of things have to happen, such as leadership behavior change, and the environment has to support the changed behavior."