



THE COLLEGE SPORTS GUIDE TO BETTER SLEEP

You Snooze, You Win



Quality sleep raises GPAs and lowers the number of dropped classes. On the field, it speeds reaction times and decreases injury risk. So how can college athletes get more of it?

Story by Amy Wimmer Schwarb

The Awakening

How one DIII school is nurturing a campus culture that values sleep — and using athletics to lead the way

The basketball players are outfitted in St. Thomas practice gear, ready to run drills and refine shooting strokes. But first, they must sit in a conference room inside the school's athletics facility, listening to a psychology professor teach them something they thought they had mastered as toddlers.

"Sleep is as impactful on your performance as your training, your conditioning, your nutrition and hydration," begins J. Roxanne Prichard, scientific director of the Center for College Sleep at the University of St. Thomas in St. Paul, Minnesota. "So how much attention do you pay to those other things, and how much attention do you pay to sleep?"

The men shift in their seats and glance at the papers in their hands — individualized sleep quality assessments, based on information they provided to campus researchers about their personal habits. If these 19 teammates sleep as much as a typical NCAA men's basketball player during the season, they average less than six hours and 15 minutes each night. That's at least two hours less than men their age need — and considering athletes require an hour or two more than a typical person, their deprivation is even more acute.

Quality sleep can improve student-athletes' grades and response times and reduce their chance of injury. If Prichard can evangelize even a couple of leaders among these men's basketball players, she knows from experience, the whole

team will follow.

"If you're routinely getting in the zone of five or six hours of sleep a night, your body is just desperately in need of sleep," Prichard warns, "and I promise your game is suffering."



The necessity of sleep predates man's emergence as a homo sapien. It's as essential as eating, drinking and breathing. Sleep deprivation even has been used as a form of torture for 600 years.

Yet millions of Americans continue to cheat nature, building habits around the myth that an hour or two less sleep equates to an additional hour or two of



J. Roxanne Prichard and Birdie Cunningham co-founded the St. Thomas Center for College Sleep. UNIVERSITY OF ST. THOMAS (MINNESOTA) PHOTO

getting stuff done. On college campuses, the all-nighter remains a rite of passage for many of the most committed students, often institutionalized by libraries that are

open 24 hours a day.

In college sports, the most celebrated student-athletes make time for it all: class, practice, studying, conditioning, game days, team activities — maybe even a little social time. For the most accomplished among them, sleep can seem dangerously optional.

"The invention of electricity really allowed us to think we can ignore nature. You can have lights on at any time of day or night," says Dr. Brian Hainline, NCAA chief medical officer and director of the NCAA Sport Science Institute. "And with that, we keep trying to push the limits of our productivity. It seems intuitive that if you work for one more hour, you're going to have one more hour of productive time. But there's a point where you have serious diminishing returns."

This year, the NCAA convened an Interassociation Task Force on Sleep and Wellness — a group of experts in sleep research, sports medicine, academic advising and mental health, among other fields, plus coaches and college athletes — to share information and, eventually, provide guidance to athletics departments hoping to maximize the quality of student-athlete sleep. The task force's work is ongoing, with a report expected later this year.

That work isn't being done in isolation: Some colleges and universities are now hiring consultants or investing in technology to track college athletes' hours of rest. But on the campus of Division III St. Thomas, a rare partnership between a psychology professor and the campus wellness director is yielding something more holistic and impactful.

1 in 5 college students
pulls an **all-nighter** at
least **once** per month.

SOURCE: Journal of Adolescent Health, February 2010



Percentage of **student-athletes** reporting they would prefer to spend **more time sleeping**



The men's basketball team, suited up for practice, listens as Prichard explains the link between sleep and performance.

JUSTIN TAFOYA / NCAA PHOTOS

Success for the school's Center for College Sleep is measured in more subtle ways than sleep hours tracked or disorders diagnosed. Instead, little victories reside in dorm rooms and off-campus apartments, where even the premed and engineering students set alarms reminding them not to wake up, but to go to bed. At football practice, a series of dropped passes elicits this chiding from a teammate: "You must not have gotten enough sleep last night." And in the athletics department, a coach keeps a pillow and "do not disturb" door hanger in his office — perfect for a midday nap.

The center's founders hope to change the culture of sleep on one college campus. And student by student, team by team, St. Thomas is waking up.



The Center for College Sleep traces its roots to 2009, when Birdie Cunningham,

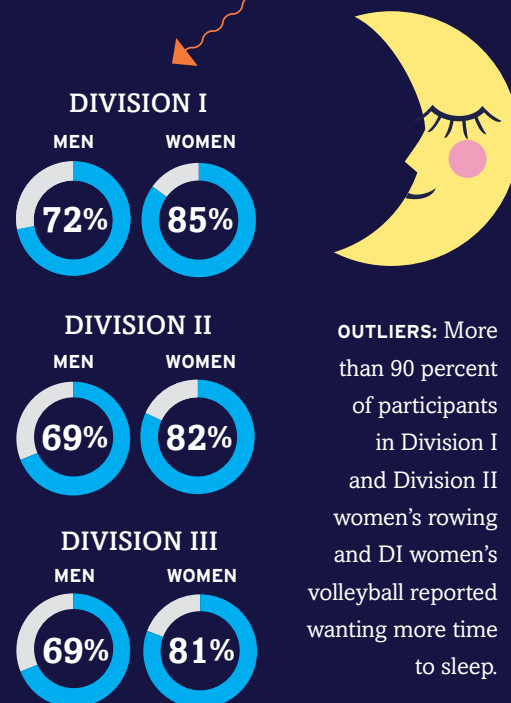
St. Thomas' wellness director, was reviewing results of a campus health study. She was surprised to see students list sleep as their third-biggest stressor, behind academics and finances.

Prichard, meanwhile, had spent the first several years of her career in the company of lab rats, investigating the impact of light on sleep. In 2010, her work deviated from rats when she took part in a three-campus research project on sleep patterns in college students in an academic journal.

In one year, the college sleep study was cited by other researchers more times than all her previous rat research combined. Maybe, Prichard thought, she shouldn't spend so much time with rats.

Cunningham reacted to the health survey by assembling a campus work group to consider the issue of sleep. A

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SOURCE: NCAA Research

colleague mentioned the professor who had just published some sleep research, and Cunningham reached out to Prichard for the first time.

“Prichard is so research-based, whereas I’m the one who says, ‘Let’s be creative and think how we can help people change the behavior,’” Cunningham says. “We have different ways of thinking. Bringing that combination together was super-exciting to me.”

Also exciting? Sleep’s impact on nearly every aspect of life. The more the two investigated its ramifications — particularly for students — the more passionate they became.

In the United States, sleep deprivation sabotages work productivity, costing employers an estimated \$411 billion per year. On the roads, sleepy drivers cause 1.2 million car crashes each year — about one of every five. Diminished sleep is also linked to poor mental health: People who are sleep-deprived are 10 times more likely to screen positive for the symptoms of depression or anxiety. In fact, mental health professionals often prescribe improved sleep as a treatment for depression, anxiety and even bipolar disorder.

On campus, marijuana use, binge drinking and learning disabilities do not independently predict whether a first-year



Many St. Thomas student-athletes turn to Prichard for guidance on their personal sleep habits. Senior swimmer Warren Melton came to her with questions about folding early-morning swim practices into a healthy sleep routine. JUSTIN TAFOYA / NCAA PHOTOS

student will withdraw from a course, but sleep problems do. According to 2014 research co-authored by Prichard and St. Thomas economics professor Monica Hartmann, for each additional day per week that a student has difficulty sleeping, the chances of that person dropping a course increases by 10 percent.

Findings like these fuel Prichard and Cunningham’s devotion to offering sleep solutions, yet knowledge alone can’t drive culture change. “Medicine is not driven by science alone,” says Hainline, the NCAA chief medical officer, “but rather by a variety of factors that also include culture, economics, politics and belief systems.”

In the summer of 2016, St. Thomas formally established its sleep center, partially

funded through licensing of the College Sleep Questionnaire, a tool campuses can use to gauge their students’ sleep quality and give students individualized instruction for improvement.

Today, the center’s programming receives a coveted hour on the orientation itinerary of St. Thomas incoming students. Prichard teaches a course devoted solely to sleep and incorporates sleep improvement into every class she leads. She and Cunningham have an arrangement with student health services that allows them to refer students with problem sleep to a nurse practitioner, who can help diagnose apnea and other sleep disorders. They successfully have pushed dining halls to open earlier on the weekends to help keep students on a consistent daily schedule.

On how many of the past 7 days
did you get enough sleep that you felt rested
when you woke up in the morning?

DAYS	MEN		WOMEN	
	ATHLETES (GOALS 2015)	NON-ATHLETES (NCHA ACHA)	ATHLETES (GOALS 2015)	NON-ATHLETES (NCHA ACHA)
0-3	52%	54%	57%	62%
4-5	31%	33%	32%	29%
6-7	17%	13%	11%	9%

SOURCES: American College Health Association. American College Health Association-National College Health Assessment, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015 ACHA-NCHA II, ACHA-NCHA IIb. Hanover, MD: American College Health Association; (2017 2 7).





The center established a “sleep room” within a residence hall that is open for campus tours. It includes tips for making a dorm room conducive to sleep, and it also signals to parents and prospective students that the campus takes sleep seriously.

And Prichard meets with students for one-on-one conversations about how they’re sleeping and helps coaches modify their teams’ schedules to ensure student-athletes get better sleep.

“We are really working on an area that’s under-researched and has very few resources dedicated to it at the college level,” Prichard says. “But it is so incredibly important and transformative, especially for vulnerable students. It makes me feel like I’m doing my life’s work here.”



In her presentation to the men’s basketball team, Prichard warmed up her audience with some sleep-themed basketball trivia: What former NBA star still holds the record for most points scored in one quarter of a playoff game? (Answer: The Golden State Warriors’ Eric “Sleepy” Floyd.)

Sitting in the back of the room, Cunningham smiles. Prichard customizes each

presentation for each sport, and though the wellness director has heard her colleague talk to college students about sleep dozens of times, Sleepy Floyd’s exploit is a fresh factoid.

Prichard moves on to some sleep testimonials: NBA player Steve Nash reports sleeping for 10 hours each night; LeBron James, 12.

The assessments in these men’s hands tell them they aren’t snoozing like LeBron. “Who fell asleep in class this week?” Prichard asks, though none of the men wants to fess up. “One-third of college students do it at least once a week.”

Don’t get enough sleep, she says, and you are three times more likely to suffer from lapses in attention — the stuff turn-overs are made of. She tells them about a 2011 study involving a Stanford men’s basketball team, which committed to nine hours in bed each night for five weeks and saw a more than 11 percent improvement in free-throw shooting and a nearly 14 percent hike from beyond the arc.


She also delivers a cautionary tale: According to preliminary research dis-

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St. Thomas football coach Glenn Caruso is a believer in the power of quality sleep – for himself and his players. He keeps a pillow and do-not-disturb door hanger in his office for brief midday naps. JUSTIN TAFOYA / NCAA PHOTOS

“When it’s time to work, we work. And when it’s time to study, we study. And when it’s time to sleep, we sleep.”

Glenn Caruso | St. Thomas football coach



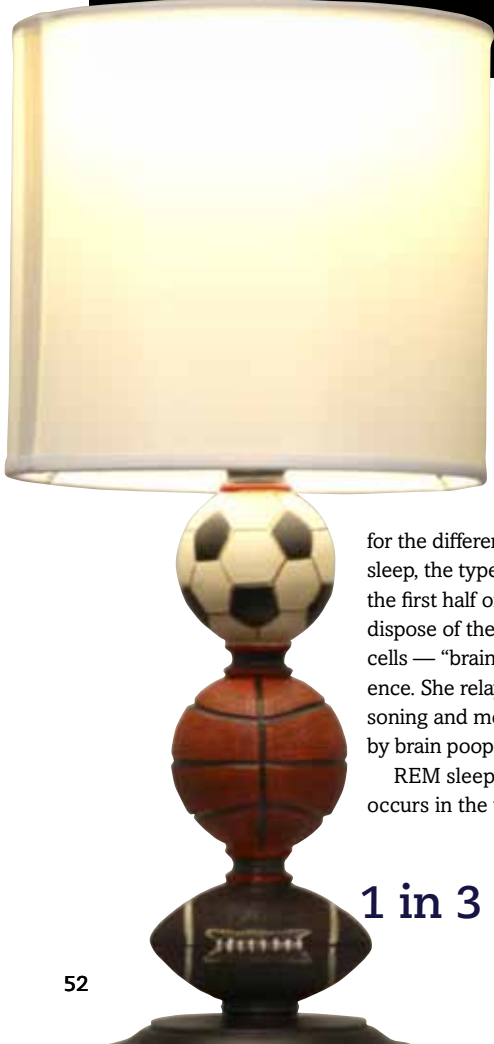
While You Are Sleeping

Not getting enough rest? Your sleep space may be working against you. St. Thomas outfitted an unused dorm room to demonstrate how three words – quiet, dark and cool – can create a restful refuge.

★ **EYE MASK.** Yet another way to shield your eyes from light that can disrupt sleep.

★ **BEDSIDE LAMP.** If you share a room, a small light near your bed and your bed alone allows for personal reading time while respecting your roommate's need for darkness.

★ **BLACKOUT CURTAINS.** Light is a powerful regulator of our internal clocks, so control how much enters your bedroom window by making the room as dark as possible. (And while you're at it, don't fall asleep with the TV on either.)



cussed at the NCAA's sleep task force, both male and female college athletes with sleep difficulties are more likely to suffer an injury than their well-rested peers. The data is being analyzed and could be released this year.

Prichard goes on to explain the need for the different stages of sleep. Deep sleep, the type most people enter within the first half of the night, is required to dispose of the metabolic waste of brain cells — “brain poop,” she tells her audience. She relays how vision, spatial reasoning and motor skills can be clouded by brain poop buildup.

REM sleep is the lighter sleep that occurs in the wee hours of the morning,

she says, explaining how brains use REM sleep to run dress rehearsals for new knowledge — the anatomy terms learned in class, the plays run at practice. Without REM sleep, people's ability to commit new learning to memory is impaired.

“Your brain is actively processing your memories of the day,” Prichard says, “and trying to incorporate what you learned into the person you'll be tomorrow.”



Prichard and Cunningham still are working to win over the men's basketball team. But the St. Thomas football team already is stocked with believers, including head coach Glenn Caruso, who calls sleep a “winning edge.”

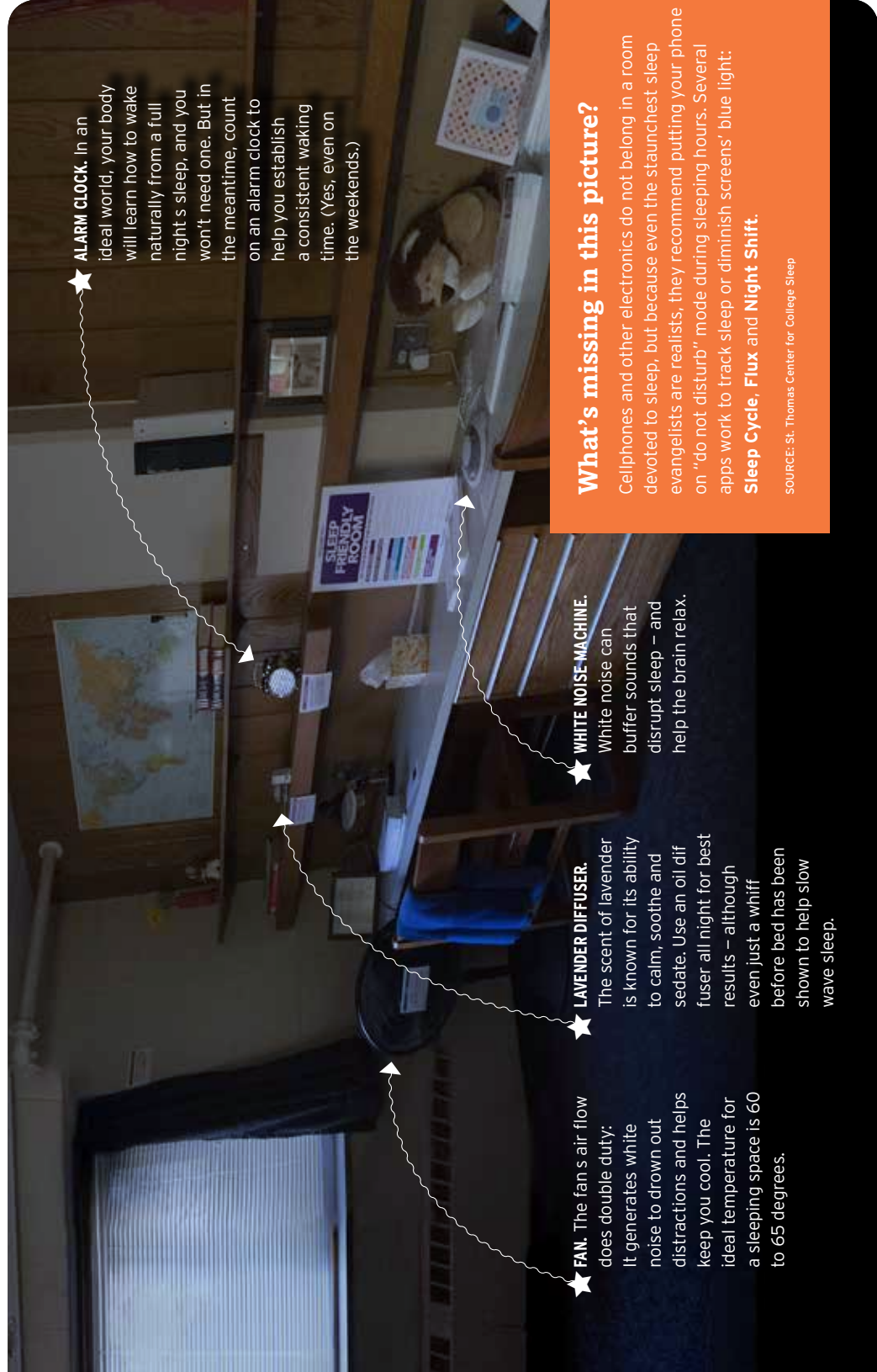
“A lot of people hear about the work we do on sleep, and they think, ‘Well, then, you're giving up hard work,’” says Caruso, who has led the Tommies to a runner-up finish in the Division III Football Cham-

pionship two of the past six seasons. “We work tirelessly, harder than our opponents, but when it's time to work, we work. And when it's time to study, we study. And when it's time to sleep, we sleep.”

The coach's passion has manifested in his players. One football player has identified a handful of good napping spots on campus; he can be found snoozing daily, from 2:30 to 3 p.m. Recently, a defensive lineman turned to campus health services to be screened for a sleep disorder after his roommates — some football teammates — told him his snoring disrupts his sleep and theirs.

And when St. Thomas senior Jeremy Molina, a fullback and neuroscience major, dropped three passes in a row at a recent practice, his teammate and roommate suggested he might need more shuteye. “That's probably not going to happen at another place where they don't talk about sleep,” Molina says. “He knows

1 in 3 college students **stays up until 3 a.m.** ★



★ **ALARM CLOCK.** In an ideal world, your body will learn how to wake naturally from a full night's sleep, and you won't need one. But in the meantime, count on an alarm clock to help you establish a consistent waking time. (Yes, even on the weekends.)

★ **FAN.** The fan's air flow does double duty: It generates white noise to drown out distractions and helps keep you cool. The ideal temperature for a sleeping space is 60 to 65 degrees.

★ **LAVENDER DIFFUSER.** The scent of lavender is known for its ability to calm, soothe and sedate. Use an oil diffuser all night for best results — although even just a whiff before bed has been shown to help slow wave sleep.

★ **WHITE NOISE MACHINE.** White noise can buffer sounds that disrupt sleep — and help the brain relax.

What's missing in this picture?

Cellphones and other electronics do not belong in a room devoted to sleep, but because even the staunchest sleep evangelists are realists, they recommend putting your phone on "do not disturb" mode during sleeping hours. Several apps work to track sleep or diminish screens' blue light: **Sleep Cycle, Flux and Night Shift.**

SOURCE: St. Thomas Center for College Sleep

JUSTIN TAFOWA / NCAA PHOTOS

my habits and how late I'm up working."

The average NCAA football player sleeps five hours and 51 minutes each night during the season — the worst sleepers among college athletes, according to NCAA research. The average among St. Thomas football players stands at seven hours and 38 minutes.

"Birdie's real proud of it, and I think Roxanne is like, 'That's great — let's try to get to seven hours, 45 minutes next year,'" Caruso says of the Center for College Sleep co-founders.

Some afternoons, Caruso closes his office door and slips off his shoes for a brief rest. Naps are OK if you need them, Prichard has advised him. Just no more than 30 minutes, and always halfway between your standard wake time and consistent bedtime.

Before he sleeps, Caruso pulls a fluffy red pillow from a desk drawer and, after a couple of clicks, his laptop speakers begin

playing sounds of waves crashing along a shoreline. "It's a deserted island," he says of the white noise he pumps into his Minnesota workshop. "One of my happy places."



A few hours each week, Prichard carves time out of a packed teaching schedule for one-on-one consultations with students who want to maximize their sleep.

On a Tuesday in October, Warren Melton, a senior swimmer majoring in psychology, poses a question about a scheduling issue common among college athletes: early morning conditioning workouts. How can he build a consistent sleep schedule when his calendar varies from day to day?

"I might have a morning practice one day or a morning lift, so I can't go to bed and wake up at the same exact time every day," Melton says. "Is there a way to still get a good night's sleep even though I know every day is going to be different?"

"You want to keep it as consistent as possible because your body takes a full day to shift an hour," Prichard advises. "What's the earliest you'd have to wake up for practice or for lifting?"

Three days a week, he wakes at 5:10 a.m.

"When would your body naturally want to wake up?" she asks.

Seven, he says.

Prichard's allegiance is to a student's sleep, not to the availability of a pool, a team's conflicting class schedules or the needs of a coach. She regularly advises students not to register for 8 a.m. classes because 18- to 22-year-olds aren't functioning fully at that hour, and she never teaches one herself.

She cajoles administrators to close the library at a decent hour and open the cafeteria for breakfast early on the

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at least once per week.

SOURCE: Journal of Adolescent Health, February 2010



Raise Your Sleep IQ

A few resources to get your campus started on the path to restfulness:

COLLEGE SLEEP ENVIRONMENTAL SCAN. Do the light bulbs used on your campus inhibit sleep? Is your dining hall open early on the weekends for those trying to maintain a consistent schedule? This free questionnaire, prepared by the Center for College Sleep at St. Thomas, takes two to four hours to complete and helps identify the sleep inhibitors at your college or university. stthomas.edu/collegesleep/environment

THE COLLEGE SLEEP QUESTIONNAIRE. This assessment screens for physiological, psychological and behavioral impediments to sleep. After completing a 15-minute web survey, students receive instant personalized feedback, including advice for improving their sleep. The reports also can be shared with campus clinicians and health educators or used for research. Access to the tool costs \$2,000 to \$5,000 per year, depending on a school's size. thecsq.com

NCAA SPORT SCIENCE INSTITUTE TRAINING MODULES. The NCAA is developing a web-based educational program stemming from the work of its new Interassociation Task Force on Sleep and Wellness. The resource is expected to be available in early 2018 and will provide information for college athletes and coaches regarding sleep's effects on academic and athletic performance – and the mental, physical and emotional risks of short-changing sleep. ncaa.org/sport-science-institute

Give It a Rest

How does sleep quality affect athletic performance? A 2011 study measured the on-court performance and sleep habits of 11 Stanford men's basketball players. Before the study began, the men averaged 6.5 hours of sleep per night. By the end, they were averaging 8.5 hours – and their numbers on the court followed suit.

ARNEL REYNON / SECTION 127

PRE-STUDY

Participants slept
an average of
6.5 hours
per night.

Free-throw shooting was
7.9 shots
out of 10.

3-point shooting was
10.2 shots
out of 15.

282-foot sprint:
16.2 seconds.

POST-STUDY

Participants slept
an average of
8.5 hours
per night.

Free-throw shooting
improved 11.4 percent:
8.8 shots out of 10.

3-point shooting improved
13.7 percent: **11.6 shots**
out of 15.

282-foot sprint:
15.5 seconds.

SOURCE: Stanford Sleep Disorders Clinic and Research Laboratory

weekends to accommodate students who rise at the same hour on their off days. She also is working with the Minnesota Sleep Society to lobby the state legislature for 8:30 a.m. start times for public schools. She even persuaded the St. Thomas men's ice hockey team to drop its early morning stretching regimen.

No surprise, then, that Prichard looks at Melton's schedule and wonders whether the true solution is more than the two can accomplish in one morning. "That's bad," she says. "I'd like to get that changed."

Prichard and Melton talk out other ideas, settling on a late-morning nap between conditioning and his first class, which doesn't start until 9:35 a.m.

"Should I sleep in on the days when I don't have to get up that early?" Melton asks. "Should I try to catch up?"

Not for long, Prichard recommends. Perhaps 30 minutes. Better to go to bed earlier and keep his schedule as consistent as possible, she says.

"Catching up is kind of a lie because you only make up 40 percent of the sleep you're missing the next day," she says, "and it just messes up what's called the architecture of your day and makes it harder to fall asleep the next day."

Melton heads to class. He still is saddled with a 5:10 a.m. wakeup call but also is armed with a plan.



Personalized sessions are important to

Prichard and Cunningham's strategy. But often, a team's success is driven by a key individual — a captain or coach or athletic trainer, or even just a student-athlete driven to improve her sleep who decides to hold the rest of her team accountable, too.

Prichard wraps up her presentation to the men's basketball team, still unsure she has found a sleep advocate in this audience. She tries one more tactic: an endorsement from the St. Thomas women's basketball team, which advanced to the Division III championship semifinal last year.


"Do you guys know Paige Gernes?"

Prichard asks, referring to a senior guard on that conference champion team. "She tracked her sleep last year in my class and tried to get at least eight hours."

Gernes increased her 3-point percentage from 26 to 42 percent, Prichard notes, and also pulled off a second feat. The biology major won the NCAA Elite 90 award, given to the student-athlete at a championship's final site who has earned the highest GPA.

The professor implores: Put your phones on "do not disturb" at night. Go to bed at a consistent time every day. Wake up at the same time, too — even on weekends.

"What I'd like you to do is to change some things in your lives, so you can actually get a little closer to eight, nine, 10 hours of sleep.

"If you do," she adds, "great things happen." 



Madonna McDermott, executive director of health, wellness and counseling at St. Thomas, instructs junior David Danhauer, a defensive lineman and supply chain and operations management major, on how to administer an at-home test that measures whether he might have a sleep disorder. JUSTIN TAFOYA / NCAA PHOTOS

You Are What You Sleep

Food fuels our performance – including how well we sleep

Christina Meyer-Jax, an assistant professor of nutrition at St. Catherine University, shares a few tips on what – and what not – to consume to ensure a restful night:

RESTRICT CAFFEINE CLOSE TO BEDTIME. It has its place in a healthy diet, but the right time for caffeine is not four to six to hours before bedtime. A University of Michigan study found that caffeine consumed six hours before bedtime reduced sleep by as much as one hour.

NO ALCOHOL TOO LATE EITHER. Sure, this depressant helps us fall asleep. But it also disrupts our sleep later in the night, when our brains rely on REM sleep to process yesterday's emotions and tomorrow's stressors.

KNOW YOUR WEAKNESSES. For some, spicy foods wreak havoc on digestion and sleep. For others, dairy can be a culprit. What works for a teammate or friend won't necessarily work for you.

DON'T EAT TOO MUCH LATE AT NIGHT. Digestion works best when it lets gravity do the work. The stomach needs about three hours to process a meal, so allow it to do its job before bedtime.

CONSUME FOODS THAT HELP YOU SLEEP.

Foods such as walnuts and cherries contain melatonin, which helps regulate the sleep-wake cycle. Magnesium-rich leafy greens help you relax and sleep better. And tryptophan is the sleep-supporting amino acid found in protein-rich foods such as poultry, fish, eggs, cheese, bananas and potatoes.

LAY OFF NICOTINE, TOO. Like caffeine, nicotine's effects can take hours to wear off.

