Rough year for your favorite NFL team?
Join me, Danny Heifetz along with Danny Kelly,
Ben Stollack, and Craig Krolbeck on the Ringer NFL Draft Show,
where we talk about all things NFL Draft,
and more importantly, how to fix your mediocre team.
Check out the Ringer NFL Draft Show every Tuesday and Thursday.
Today's episode is about sleep.
Some of the episodes we do on this show
come from my curiosity about the world,
and some of them come from my curiosity about my own life.
This episode belongs firmly in both categories.
This is research and this is me-search.
I am fascinated by sleep and also, perhaps, relatedly,
not very good at it.
I've had various forms of insomnia for most of my life.
In college and in my 20s, I struggled to fall asleep.
In my 30s, the trouble is now mostly staying asleep.
I can't count the number of times.
I've woken up at 3 a.m. in the morning
and suddenly alert, wide awake.
And a few years ago, I was researching
my own nocturnal issues when I discovered the work
of a historian named Roger Eckertsch.
In the 1980s, Eckertsch was doing research for a book
about how older societies think about the nighttime.
And he stumbled on references to two mysterious terms,
first sleep and second sleep.
He found these terms in a crime report from the 1600s.
He had never seen those phrases before.
And when he broadened his search,
he found mentions of first sleep
or second sleep in Italy, in France,
across Africa, in the Middle East, South Asia, Latin America.
In Germany, he found evidence of middle of the night
insomnia in no less than the journals of Martin Luther.
Yes, the father of the Protestant Reformation.
In the 1540s, Luther wrote this
about his midnight strategies to ward off the devil.
Quote, every night when I wake up,
I instantly chase him away with a fart.
End quote.
What it all meant is that segmented sleep is an old habit
or as Eckertsch calls it, biphasic sleep,

meaning sleep in two phases.
Many and perhaps most people who have ever lived
broke up their sleep in two parts
until the Industrial Revolution.
Beginning in the 1700s, Eckertsch thinks,
the accoutrements of modernity,
that is light, caffeine, clocks,
and above all, modern work schedules,
took the history of biphasic sleep, segmented sleep,
and mushed it into one contiguous eight-hour rest.
How did it do this?
Well, electricity and other forms of artificial light
delayed bedtimes.
People could stay up later, eating, drinking, reading.
New factory schedules required early awakening.
Caffeine made those early wake-ups
a little easier to bear.
And so today, while you and I live in a world
where one-shot sleep is basically the norm,
it's two-part sleep that might be
how the human body wants to rest.
In fact, in the 1990s, there was a study done
by the National Institute of Mental Health
that deprived a cohort of male subjects,
electric lights at night.
And they took away electricity from these guys.
And after a few weeks, these dudes' sleep became segmented.
They reverted back to our old pre-industrial
biphasic sleep habit.
So maybe my middle of the night insomnia,
and perhaps your middle of the night insomnia,
is just one of those things
where we can just blame capitalism.
Maybe industrial capitalism took our perfect
two-part beauty rest and just smashed it into one go.
Maybe.
But the deeper you dig into questions about sleeping habits,
the more you realize just how diverse sleep is,
not just among humans, but also among animals.
Studies of hunter-gatherers in Tanzania, Madagascar,
and Bolivia have found that tribes there
actually mostly enjoy one long sleep.
They sleep just like today's post-industrial workers.

And as my colleague at the Atlanta, Katie Wu,
pointed out recently, there is no singular animal recipe
for sleep either.
Every species figures out its own thing.
Cows chew while they sleep.
Frigate birds fly while they sleep, seems dangerous.
Dolphins shut down half their brain at a time
to maintain constant alertness.
Elephant seals average just two hours of sleep a day,
two hours of sleep broken into about 25-minute naps,
which is, according to Wu,
the lowest daily sleep total ever recorded definitively
four mammal.
By the way, there's some evidence that suggests
that elephants too only need two hours to do their thing,
which is sort of a weird coincidence
because they have no relation to elephant seals.
So what is the upshot of this brief
and scattered history of sleep within the animal kingdom?
I think it's something like this.
Different bodies seem to want to sleep in different ways.
So you have to find what works for you
and do your best to keep that thing going.
Today's guest knows much more about sleep
and sleeping well than I ever will.
She is Dr. Jade Wu, a behavioral sleep medicine specialist
and researcher at the Duke University School of Medicine.
She is also the author of Hello Sleep,
the Science and Art of Overcoming Insomnia
Without Medications.
And why I really wanted to bring Dr. Wu on the show
was to answer what for me has become
a kind of existential question about sleep.
In a recent episode on health trends and health behaviors,
we talked about how sleep in some ways might be
the most important habit you can develop.
It is the glue that keeps our bodies together.
And yet when I wake up in the middle of the night,
when we wake up in the middle of the night
or have trouble falling asleep,
sometimes we start obsessing over the fact
that if we don't fall asleep, we're gonna lose our glue.
Our life is gonna fall apart.

How do we balance these two important facts?
That sleep is central to our health.
And also that if we take it too seriously,
we can't fall asleep.
I'm Derek Thompson.
This is Plain English.
Dr. Jade Wu, welcome to the podcast.
Thanks so much for having me.
First off, tell me who you are, what you do,
and how as both a researcher and a clinician,
you came to sleep as your specialty.
Okay, so I'm Dr. Jade Wu
and I'm a behavioral sleep medicine specialist.
So that means I help people
to understand what I'm doing and what I'm doing.
And I'm also a doctor.
I'm a doctor.
I'm a doctor.
I'm a doctor.
I'm a doctor.
I'm a doctor.
That means I help people to overcome their sleep problems,
to improve the quality of their sleep
without using medications.
And so I actually came to sleep
because of a personal love for sleep.
So I started college as a double major math econ,
but then there was a prerequisite for an econ class
that started at 8 a.m.
And I am not a morning person, never have been,
especially in college.
And I was like, no, no, no, no.
I need to get enough sleep.
So then what other major can I do
that allows me to get up at like eight
and go to class at 9 30?
And turns out that was psychology 101.
And it just so happens that the professor teaching that class
was a sleep researcher.
And I just fell in love from there.
My dad's favorite comedian was Lewis Black.
And Lewis Black had a line about literally,
I think it was economics classes starting at 8 a.m.

in the morning on a Friday.
And his joke was,
are they trying to keep this shit a secret?
Because that is the only reason
why they would possibly start this class
at this time on this day.
So it's a conspiracy.
It is a conspiracy.
All of economics is basically a conspiracy.
I do want to get into the nitty gritty
on the science of sleep and wakefulness.
But before we get into the science,
there's a big picture question that I want to clear up.
I think there's a very fascinating tension,
almost a paradox in America today,
at the heart of how we talk about sleep in this country.
On the one hand, sleep, we are told,
is at the heart of everything.
It is one of the most important things in the world.
It is the best mood stabilizer.
It is the best stress reliever.
It is the best immune booster.
High quality sleep is treated like a miracle drug.
And without it, it's like we're screwed.
On the other hand, if you take all of that too seriously,
the ordinary person may very well develop
an anxiety disorder around sleep
that will increase their odds of insomnia.
And many people, I think, feel that tension
writ small when they're lying awake in their beds.
Like it is precisely their urgent anxiety
to fall asleep that is keeping them awake.
So here's the central tension
for an insomniac country as I see it.
We are told, if you can't sleep, just calm down.
But if you don't fall asleep, you're going to die.
So what wisdom can you offer us
to help resolve that tension?
Well, you've asked the most insightful question
because there is such a tension.
And I see it with my patients all the time.
They're coming in saying, I'm afraid that I'm going to die early
because I'm not sleeping well.

And the fact that I'm worrying about having hypertension
or dementia or whatever is the thing that's keeping me up.
So that is definitely a common phenomenon.
Now, at the heart of this is a common misconception
that I think we all have.
And that's that sleep deprivation and insomnia
are used interchangeably as if they're the same thing.
But actually, they're very different things.
In fact, in some ways, they're opposite things.
So sleep deprivation is when you don't have
enough opportunity to sleep.
So this is like the college student pulling the all-nighter
to study or party.
This is like someone who's working three-part-time jobs
and they do shift work
and they just don't have enough time in bed.
So that would be sleep deprivation.
And also there are some medical conditions
like sleep apnea where your own breathing problems
are interrupting your sleep throughout the night.
That's also sleep deprivation.
On the other hand, with insomnia,
you have enough opportunity to sleep.
In fact, people with insomnia are usually working really hard
to perfect their sleep hygiene and sleep environment.
And they have all the right setups
and all the time in the world.
But then something internal is keeping them up.
So these two are very different concepts.
And the easiest way to think about how they're different
is if you are sleep deprived,
you are gonna be really sleepy,
like falling asleep standing up, right?
And if you're that sleepy, you're not gonna have insomnia.
You're not gonna have trouble falling or staying asleep.
So in this way, these are actually opposite things.
I don't think anyone has actually explained it
to me like that.
That sleep deprivation tends to be high sleepiness
but not enough bedtime.
And insomnia tends to be low sleepiness
and often too much bedtime.
Precisely.

It sounds to me like the way we're panicking about sleep
in this country is totally wrong.
If it is sleep deprivation that has the higher risk
of these lifetime negative consequences,
like sleep deprivation seems to be the greater health risk
if I'm hearing you right,
while insomnia is the more common anxiety.
Exactly.
And the irony is people who are sleep deprived,
either they cannot change their schedules and sleep more
or get more time in bed or they just don't care.
They're like 19 and partying, right?
And then the people who have insomnia
who really need to calm down more about sleep
and be less anxious,
they're the ones working really hard
to perfect their sleep hygiene.
So in a way, the difficulty, the challenge for us,
sleep scientists and clinicians,
is how do we put a public health message out there
that doesn't freak people out too much about sleep
but also tells them how important it is.
We're trying to really target the right audience
with the right message and it's really hard to do.
Are there demographic differences
between the group of people who tend to be sleep deprived
versus the group of people who tend to be insomniacs?
Great question.
So younger people are more likely to be sleep deprived,
especially teens, people in college,
people in their early 20s,
either because high schools start at 730 or 8 a.m.
That's way too early for a teenager, right?
They're, well, we'll talk about circadian rhythms later,
but they are hardwired night owls.
They are not supposed to be sleeping that early.
So teenagers aren't getting enough sleep.
And also people who are sleep deprived or do shift work
or somehow just don't have enough opportunity
for quality sleep are more likely to be minorities.
So black and brown folks in this country
are much more likely to do shift work, for example,
or not have good sleep environments.

For example, poor neighborhoods have more lighting outside
for crime reduction reasons,
but this also means that there's much more light at night
which prevents quality sleep and disrupts circadian rhythm.
That's just one of many, many examples
for why people in poor neighborhoods
just don't have enough opportunity
for good quality sleep compared to richer neighborhoods.
Surely some people's insomnia is so bad
that they are sleep deprived.
And I don't wanna communicate the idea
or leave listeners with the idea
that insomnia is just always fine
and merely some- Oh, of course.
Anxiety disorder.
And you weren't saying that,
but I just wanna transition to,
what's the best way to ask this question?
Here, maybe this is it.
When is insomnia biologically, physically bad for us?
Versus when is it merely annoying?
When is it merely the source of an anxiety disorder
versus something that is actually bad
for our bodies and our health?
You know, I actually wouldn't draw the line
at mild versus severe insomnia
and how little one is actually sleeping.
There's no hard cut off
for how many hours you're sleeping
that makes insomnia more problematic than less.
I would actually identify,
how much is it interfering with your functioning?
Because not everybody needs the same amount of sleep.
You can sleep four hours and have insomnia.
You can sleep eight hours and have insomnia.
It's not the number of hours.
It's more how much you're struggling with sleep.
How bad is your relationship with sleep?
So are you lying awake for two hours every night,
anxious and frustrated,
and waking up feeling like you got run over by a truck
and you're dragging your feet through the day
and you're just feeling so irritable and cranky?

I mean, that's a problem.
If it's interfering with your functioning,
if it's really putting a damper on your day
and your ability to function,
and a lot of my patients say,
if only I didn't have insomnia, I would go out and date.
If I didn't have insomnia, I would go to the gym
or I would travel.
These are things that make our physical
and mental health better, right?
Social companionship and having fun
and doing the things that are meaningful to us.
So if insomnia is getting in the way of you doing that,
then it's detrimental to your health.
Are there other ways that longitudinal studies
or other observational studies have shown
that there is some cardiovascular or metabolic effect
of having years and years, decades and decades of insomnia?
Yeah, this is a tricky question
because the way that we do research on insomnia,
if we follow people over years to see,
if they started out with insomnia,
how are they doing with their health seven, 10, 20 years later?
The problem is we don't know what's the chicken
and what's the egg.
Is it the insomnia that's causing the hypertension
10 years later?
Or was it some underlying cardiovascular risk factors
that are causing insomnia?
Or is it some third factor?
For example, having experienced trauma,
that's more likely to cause insomnia
and that's more likely to cause hypertension.
So is it some third factor that's causing both?
So we can't do experimental studies to see
if we give somebody insomnia, what does it cause?
Because one, that's unethical.
And two, you can't really give someone insomnia.
Insomnia is really sort of an internal generated state
whereas we can give someone sleep deprivation.
We simply don't let them sleep for a couple of days
and see what happens, right?
So that's an innate methodological issue

in the research that's really, really hard to tease out.
But I will say that the study we're working on at Duke
right now is to see if we can give people
cognitive behavioral therapy for insomnia
to improve their insomnia,
can we also improve their hypertension?
And our hypothesis is yes,
because the way your blood pressure works
is it's supposed to dip at night.
It's supposed to dip by at least 10%.
But what we see is that often people with insomnia
don't have as much of a dip, their dip is shallower.
And we want that dip to be deep, right?
So if we can get someone to sleep more soundly
and have less of that anxiety and that frustration
at night struggling with their sleep,
can we get their blood pressure
to show the appropriate pattern,
which is a healthier pattern?
I wanna make sure that I understand this distinction.
So I'm gonna offer a kind of thesis statement
and then you tell me how that thesis statement is wrong.
So we need to distinguish between two ideas
that we often conflate, sleep deprivation and insomnia.
Sleep deprivation is high sleepiness,
but not enough bedtime.
This is the thing that tends to have the most significant
and obvious negative biological health effects.
Insomnia, which is low sleepiness,
but often too much bedtime,
tends to have subtler biological health effects,
but it's still a societal scourge
if people are consumed by anxiety,
can't live a normal life and go through their days
not feeling like themselves
because they haven't gotten the kind of high quality rest
that they're seeking.
Couldn't have said it better myself, that's perfect.
And one little thing I would add too
is that we know for a fact there's very close links
between mental health and physical health.
So even if the insomnia itself
is not causing some sort of physical health problem,

just the amount of time we're spending
being anxious about sleep when we have insomnia,
I mean, anxiety has well-known physical effects, right?
So often I'm just, it's just so ironic
because it's the fear of having insomnia itself
that's keeping people up and causing the insomnia
that is then making them really tired the next day
or cranky or have GI issues the next day.
So yeah, it's a really tricky thing to tease out.
We're going to get to solutions.
I promise listeners that are now desperate for solutions,
we're going to get there.
I still want to understand a little bit more
about the science of sleep.
For relatively intelligent people,
trying to improve their sleep,
what do you think is the single most underrated aspect
of sleep science and our bodies?
I think the most underrated thing
that we should be shouting from the rooftops
is circadian health.
So circadian rhythms are our biological clocks
and we all have them just innately.
We have our master clock in our brain
and then peripheral clocks throughout our bodies,
even our individual cells have clocks.
So our entire bodies run on these rhythms
that hopefully run in sync with each other
and on a regular pattern.
So ideally you're sleeping and waking
at about the same time every day, eating your meals
and doing your activities at about the same time every day.
You're getting lots of light during the day,
not much light at night.
This is kind of how our pre-industrial ancestors lived.
And so we all have these innate rhythms
that are actually not 24 hours long
to match the rotation of the earth.
They're actually more like 24.1 to 24.3 hours long,
which means that if I stuck you in a cave
and gave you no indications of what time it is,
over the course of a week or so,
we would see you just naturally go to sleep

and wake up about 20 minutes later every day
until you went all the way around the clock.
How did that happen?
I feel like our bodies are like so exquisitely
architectured by biology and natural selection
and evolution and the fact that we've been on the same planet
for several hundred thousand or million years.
Is there a scientific explanation
for why our circadian rhythm thinks of the day
as being 24.3 hours long
when obviously the day is 24 hours long?
I don't think we have a really good answer for this,
but I mean, we can always speculate
on a sort of evolutionary level.
And by the way, it's not 24.3 hours for everybody.
We have variation, natural variation.
There are some people whose circadian clocks
are less than 24 hours long
and some that are 25 hours long.
So the 25 hour long people tend to be night owls.
These are the folks who really have to remind themselves
to go to bed and they always want to be staying up
a little bit later.
Whereas the shorter phase people are the ones
who are getting so sleepy at 9 p.m.,
they're having trouble going out with their friends
for like a late drink or dinner.
So natural variation in the population
is basically always good for a species survival, right?
Because the more variation we have between us,
the more bases we cover.
So if everybody went to bed at the same time in the tribe,
then of course the Sabre II Tiger is gonna come
and just pick us off one by one very easily, right?
So we need the night watchman.
We need the early risers
to get the bow strung for the day's hunting.
We need variation all throughout.
And it just so happens that younger people
tend to have longer and later rhythms
and older people tend to have shorter and earlier rhythms.
So I almost wonder if that's like an evolutionary thing
where we want the young, strong fighters

to be awake later at night to fight off the tigers
or in like the wise elders to get up
and start making the fire or something.
I don't know.
Oh no, that's so interesting, right?
Maybe it's just so story.
Maybe it is the science perfectly.
But the idea that biologically
a tribe would thrive if it had a shift system
sewn into their DNA and circadian rhythm,
it would allow some of them to naturally stay awake
to guard against the tigers and the foxes and the wolves
at 2 a.m.
While others would be perfectly enlivened
at 2 p.m. in order to hunt the foxes and the wolves
and the tigers in order to cook over the fire.
That's really interesting.
So it sounds like what you're saying, to be honest,
I always kind of assumed that morning person
slash like night owl was kind of like zodiac signs.
Like everyone just sort of made it up for themselves.
It sounds like you're saying, no, chemically speaking,
morning people and night owls, this is real.
If it is real, what makes it real?
Like again, scientifically, chemically speaking,
what makes someone a morning person or a night owl?
Yeah, so you probably heard of melatonin.
Melatonin is this hormone, timekeeping hormone
that we all naturally have in our bodies.
And what it does is tell the rest of the brain and body
that, oh, it's starting to be nighttime.
So it ramps up in the evening hours
and gets higher and higher and higher,
reaches its peak during the middle of the night
and then subsides in the early morning hours
and it's mostly gone by morning by the time you get up.
So it's basically our internal hormonal clock
that keeps us on track.
Now melatonin, we call this the melatonin curve,
the rise and fall and the shape of it
and the size of it and everything.
That's the melatonin curve.
For some people, their curve is just earlier

and for some people, the curve is later.
So, for example, if you're a morning person,
your melatonin curve might start rising at like 4 p.m.,
5 p.m. and get pretty high by 9 p.m.
Telling your body, oh, it's really time to wind down
and start getting sleepy.
Whereas I'm naturally a night owl.
Mine maybe doesn't start rising until like 7 or 8 p.m.
and doesn't get really high until midnight or later.
So that's just our biological signal
to keep track of time and it's really baked into our biology
to tell us when to be sleepy and when to be awake.
I'm very interested in my own circadian rhythm
because in college and even throughout my 20s,
I really was a night owl.
I found it very productive to set aside on weeknights,
the hours between nine and midnight.
And I felt like I got really great writing done then.
Now I'm in my mid to late 30s.
I can't be even barely productive after 8.30.
I mean, like every single system of creativity and product
just absolutely shuts the doors and locks it around 8.15.
And I've just got nothing left to give.
Which raises the question,
can people purposefully change their circadian rhythm?
Like how elastic is circadian rhythm for individuals
if say a night owl wants to become a morning person?
Yes, well, so first of all, there are natural changes
even without trying to change your circadian rhythm
on purpose.
So, children are notorious morning people.
Like my three-year-old will come and peel my eyelids open
at 6 a.m., you know?
But then during puberty, starting in adolescence,
we become night owls.
That's why teenagers really, really need
to have later school starts because they just,
you can't just tell them to go to bed at 10 p.m. or 9 p.m.
They literally can't, right?
So then in your early 20s too, you're more of a night owl.
And then in our later 20s and then in our 30s,
we start to drift earlier.
So that totally matches your experience

of what's already happened.
It's also behavioral too, because I bet
you probably had a little bit more flexibility
in your schedule in your 20s,
versus now you maybe have more family obligations
or work obligations.
So you probably have to get up early to get your day started.
So part of it, you've already done to shift yourself
to be more of a morning person.
And then, you know, my favorite study on this
is Kenneth Wright's study out of Colorado
where he took morning people,
like biologically morning people,
biologically night people,
took them all camping for four or five days.
And Colorado's beautiful camping country.
And they didn't have their electronics,
so they had no light, artificial light after sunset.
They just had their campfires.
And they were out and about
hiking and doing stuff during the day.
So lots of sunlight during the day.
After those four or five days,
everybody came back as a morning person,
like bonafide, melatonin curve, early morning person.
So it is elastic.
We can change.
And that's built into our DNA too,
because imagine if we were so rigidly set in our ways
that we can't respond to our environments,
to the changing seasons and the length of day
and all of that, right?
We do need to be able to change
along with the cues that we're getting,
primarily light,
because light is the thing that your brain really needs
to tell when it's day and when it's night.
It seems like for people that are interested
in riding their melatonin curve
for the purpose of being productive.
And I'm not suggesting that the only reason
to pay attention to one's melatonin curve
is to maximize productivity,

but it seems like one implication of what you're saying
is that if people pay really close attention
to their energy levels, the melatonin curve,
maybe if they consult with a sleep doctor as well,
it might be really instructive for them
to learn when do you have the kind of energy
that would allow you to be a really productive writer
or really productive researcher,
versus what parts of the day make more sense
to slough off toward, all right, now go to the gym
because your mind's gonna stop working.
Now do this other activity
because you've got no energy left in your brain.
In your clinical work,
do you sometimes help counsel people to figure out
what windows of the day are best suited
for a certain kind of activities?
Yes, I always say work with your body, not against.
So whatever, and you don't even need to go to a clinic
and do melatonin profile
to really figure out what type of chronotype you have.
If you just honestly ask yourself,
if I had a two month long vacation,
when would I naturally wake up and go to sleep?
Or if you ask a young person,
if you had to take the SAT tomorrow,
would you rather take it at 8 a.m. or noon or 8 p.m.?
And resoundingly,
they'll probably say the afternoon or evening, right?
So it's like, it's actually pretty easy
to tell what kind of chronotype you have.
If you have the privilege of having a flexible work
or school schedule.
Now, lots of people, of course,
don't have control over their schedules.
And that's really tough,
especially for shift workers and early morning shift workers,
they really, really have it very tough,
not just on their cognitive functioning,
like how creative and productive they can be,
but also on their bodies.
Like we know for a fact,
we know from many years of research

that nurses who have done more night shift work
are more likely to have breast cancer.
And we know that shift workers
are more likely to have cardiovascular disease.
So it is truly, and in fact,
shift work is the only non-chemical carcinogen
on the list of known carcinogens.
So it's really, it's a tough question
because whenever I can counsel a patient to say like,
oh, negotiate with your boss to start your day later
so you can live your best life as a night owl,
that's all well and good if they have that privilege,
but many people just don't have that option.
I've read in several places
that a handful of extreme high performers
simply don't need very much sleep.
Like there is this like special class of human beings
that can thrive with extraordinary energy
and no caffeine on something like three,
four hours of sleep a day.
Is that real or is that largely a myth?
It is largely a myth.
I mean, it is real to the extent that,
you know, it does exist exceedingly rarely.
And I would say most of these people
who are bragging about four hours of sleep
and functioning great as the CEO of whatever company,
either they're lying or they're actually doing more damage
to their body and they're not functioning as well
as they think they are.
So for example, I've had cases of people who are like,
yeah, no, I did perfectly fine on four hours of sleep
as an eye banker in Manhattan throughout my 20s.
And but now my hair's falling out, you know,
I have ulcers, you know, I have digestive issues.
I can't remember people's names.
It's like, well, you know, that it adds up, right?
Like even if you don't feel the negative effects
necessarily because you're pounding red bowls
and you're living a fast-paced life
that keeps you on your toes,
doesn't mean that there's not real damage being done.
And, you know, for example,

we have studies on young adults especially
where the less they slept the night before,
the more unreasonably rosy they were
about their own performance the next day
on like reaction time tasks,
where they said, you know, yeah, I performed perfectly fine,
but they were totally overestimating their performance.
Whereas the people who actually slept more
but maybe had insomnia or like didn't feel
like they slept enough were unsure about their performance,
but they actually performed better.
So basically the less you sleep,
the cockier you are about your performance
and the more wrong you are.
Which implies that when people barely sleep
and say I'm still high-functioning,
we should say your impression that you're high-functioning
is actually a delusion created by the fact
that you barely slept.
Like their judgment about their judgment
is hurt by sleeping less.
Yup.
That's so interesting.
I didn't realize that.
That's a real interesting finding.
I know that you do a lot of work around perinatal sleep.
That is sleep among new parents.
And there's a conventional wisdom here
that when you have a kid,
sleep is just going to suck for a while, period.
Like sleep just sucks when you have a new child
and that is just an immutable law of life.
What is your take on the relationship
that modern Americans have with perinatal sleep?
I think that conventional wisdom is not totally wrong
because sleep does change, right?
When we're pregnant, when we have babies,
just inevitably everything gets shaken up,
your schedule is different,
what you're responsible for is different,
your biology is different, everything's different.
So of course sleep is different too.
But I think we maybe don't realize

that there are things we can do to help
or at least to make it suck a little bit less.
And I think the reason we don't know about this
is because we just take for granted
that moms are martyrs, right?
We put our kids first, we suffer,
the more sacrifice we make, the better moms we are.
And we just don't really pay attention to studying
perinatal sleep, sleep during pregnancy and postpartum.
And whatever research we do have
is not really broadcast out there.
Like for example, I've had two kids,
I have a one-year-old and three-year-old.
During both of my pregnancies,
I had top-notch prenatal care from Duke University Hospital,
just literally the best you could probably get
in the country.
And nobody told me that the half-life of caffeine
can quadruple or more during pregnancy.
So it can go up to more than 15 hours,
meaning if you chug one cup of coffee at 9 a.m.,
half of that caffeine
could still be in your system by midnight.
Now if you, so if you stick with drinking coffee
the same way that you did before pregnancy,
you may not realize it,
but that caffeine is staying your system much longer.
So then of course that will affect your sleep, right?
And nobody told me that.
I found that out on my own
after I've already had two pregnancies with insomnia.
So it's just stuff like that,
that I'm astounded that we don't even pay attention to
and don't help, you know,
arguably I think moms are maybe some of the most important,
maybe, yes, the most important people.
And also during pregnancy and postpartum,
this is maybe our best opportunity as a society
to really improve public health is from the ground up,
from, you know, the life-giving force of moms.
If we take care of them, we take care of everybody, right?
And sleep is so foundational.
Your sleep researcher who has had two children.

So I'm interested because I know that some scientists
my life sort of treat their different children
like, you know, control groups.
Did you change the way that you slept
or that you thought about your sleep
and your baby's sleep between child one and child two?
Absolutely.
And, you know, this is almost embarrassing
because by the time I was pregnant with my first child,
I was already a board certified
behavioral sleep medicine specialist.
And I had been doing research on sleep for years.
So you would think I of all people would know better, right?
But nobody told me, like even in my professional work,
this was just not a topic.
So I definitely did not have a good time with sleep.
The first time around, I had all the sleep disorder symptoms
like hallucinations, sleep paralysis, nightmares, insomnia,
you know, daytime sleepiness, all the bad stuff.
So then for my second child,
I really concertedly did more targeted research
and did a lot of sort of self experimentation
and it went a lot better the second time.
And the main change that I made was that
for my second child, I prioritized my circadian health.
So practically, this is what it meant.
The first child, you know, I listened to the whole,
nap when your baby naps, just get as much sleep as you can,
right?
So I split the night shift with my husband
and I took, you know, like 7 p.m. to 4 a.m.
I slept and then I was awake and just started my day
with a baby at 4 a.m.
And he slept from 4 to 11 a.m.
And I just snatched napping whenever I could during the day.
Now, as I told you before, I'm naturally a night owl.
So that whole like 7 to 4 sleep was totally misaligned
with my preferred, you know, midnight to 8 sleep.
It was totally off.
So whatever I sleep I did get was not good quality sleep.
And my functioning during the day was awful
because I was waking up multiple hours before sunrise,
which my body was just so confused by.

And snatching naps at random times during the day
affected my nighttime sleep
and further messed up my circadian health.
So I was just, I had postpartum depression.
I was like physically not feeling well.
I had all sorts of infections like constantly.
It was just a really terrible time.
So with my second child,
I prioritized my circadian stability.
So I went to bed exactly, you know,
when I would normally go to bed.
I got up and I got lots of light during the day,
you know, same time, same wake up time every day.
And I napped at the same time every day.
I still allow myself a nap, but I scheduled it.
And I allowed the baby, the baby schedule to sync to me
rather than me chasing after the baby schedule.
And this way we actually both synced up better.
And my second baby slept better
and learned to sleep through the night earlier
than my first baby too.
So all around, and I already had a toddler
running around the house.
So all around, even with the toddler,
I was feeling better, performing better.
I wrote a book, you know, like during that pregnancy,
everything just went better
when I prioritized my circadian rhythm.
Oh, and by the way, a lot of moms are agonizing over,
should I breastfeed or not?
Should I nurse or not?
Because if I don't, maybe I'll get more sleep.
But one really cool thing is that when you nurse,
you have more prolactin.
And that gives you more deep sleep, like a lot more.
Like it doubles, possibly triples,
your amount of deep sleep percentage during the night.
So it's kind of like your brain's way of saying,
like, sorry that you have to wake up at night.
Let me make up for it, you know,
with this extra deep sleep.
And so that's what I did with my second child too.
With the first one,

I really tried to get my husband to feed bottles at night.
And that messed with my supply and everything too.
But with the second child, I just, I was like, forget it.
I'll just get up and nurse whenever needed during the night.
And I actually ended up getting more and better sleep.
That's so interesting.
So if there's like kind of a Dr. Wu guide
to new parents trying to eke out enough sleep,
it goes, number one, try as much as possible
to hold fast to the sleep schedules
that you've carved out before the baby is born,
riding your circadian rhythm rather than trying to fight it.
Number two, trust,
and this goes a little bit to anxiety,
trust that even though sleep will be interrupted
in the middle of the night for feeding,
nursing actually increases deep sleep percentage,
especially for the mother.
And so there can at least be a little bit
of a trade off there.
And three, to the extent that parents are going to nap
because having a newborn is exhausting,
try to nap the same time every single day
to continue to regularize that circadian rhythm
and regularize when your body wants to dip
out of consciousness and then go back to wakefulness.
Precisely, and I would just add that for the nap,
like midday or early afternoon would be ideal.
Like pretend you live in Greece
and you follow the siesta schedule, right?
Just do that.
And even if you don't fall asleep, rest,
that's a really good time to rest.
So then your body gets into a rhythm
of at least decompressing a little bit
and sort of de-arousing a little bit
because when you're a new parent,
there's just a lot of anxieties,
like, ah, I don't know what to do.
So give yourself a chance to decompress,
maybe take turns with your partner or a helper.
And that rest goes a long way too
towards improving your nighttime sleep

because if you are going, going, going all day
when you're a new mom,
that message that you're sending to your body
is that there must be a saber-to-tiger chasing you
all day long because otherwise,
why would you be four weeks postpartum
and working this hard, right?
So, you know, teach your body that it is safe,
it's okay to relax and, you know,
let's actually take time to decompress
and allow your nervous system to come down a little bit.
I wanna finally get to solutions for everyone.
We have talked in this show a little bit about CBT,
that's Cognitive Behavioral Therapy,
which is one of the more popular forms
of empirically verified clinical therapy in practice today.
You study CBTI, that is Cognitive Behavioral Therapy
for insomnia.
First off, can you just define CBTI?
What is that?
CBTI is a non-medication therapy
that improves your relationship with sleep
for people with insomnia.
So the way I like to describe it,
it's kind of like doing physical therapy,
but for your sleep.
So it's, you know, time limited,
it doesn't go on forever.
It's usually like four to eight sessions or so
meeting with a CBTI specialist
and it's very hands on, it's very tailored to you
because, you know, 10 different people
with 10 different broken ankles,
you might have to treat slightly differently.
Same thing with insomnia, right?
So it's very, it's very data-driven
and it's very personalized
and it's very homework practice-based
because just like you can't, you know,
improve your broken ankle
by only meeting with your physical therapist once a week,
you can't improve your sleep
by just meeting with your sleep therapist once a week.

There's a lot of practice at home,
a lot of changing your schedules,
trying different skills and tools.
And, you know, at the end of this,
you are hopefully not only sleeping better,
but you have such a good relationship with your sleep
that you can weather changes and challenges in the future.
You take those skills with you forever.
So let's say I'm a patient,
let's say I come into your clinic
or I enroll in your Duke Sleepright Study
and I say, Dr. Wu, I'm 36,
I'm a 36-year-old writer-podcaster
with a long history of insomnia.
This is true.
I've struggled falling asleep for many years.
Lately, my issue has been more
that I wake up in the middle of the night
and I can't fall back asleep.
And just to speed things along here, you know,
because you're gonna ask a few details about my life
and my habits and my stress,
I'll just throw it at you right now.
I'm married, I'm a bit of a workaholic.
I generally have lower than average
externalized stress symptoms,
but in terms of internalized stress symptoms,
who knows, I have strong social relationships.
I do keep my iPhone in my room.
I drink a moderate amount, say a glass of wine
or it's equivalent with dinner every other night
and then more in the weekends.
I do not smoke cigarettes.
I have very occasional marijuana use
and I do not drink enough water ever.
I don't know if that last part is clinically relevant,
but my wife would want me to be honest here.
Where would CBTI start for someone like me?
That's a very good case summary.
Thank you for that.
So I would start by asking you to keep a sleep log.
So information like when did you go to bed last night?
When did you turn out the lights to try to sleep?

How long did it take you to fall asleep?
How long were you awake during the night?
When did you wake up for the day?
When did you get out of bed for the day?
Basically, if you give me these,
I think seven or eight pieces of information
and keep that for a week or two,
then we can see a lot of patterns
and we'll see a lot of really useful data
that we can work off of.
So for example, if I see that
you are consistently having trouble falling asleep
and you're taking like an hour or more to fall asleep
at the beginning of the night,
I may start to wonder,
are you going to bed too early for your chronotype?
Are you maybe biologically more of an evening person,
a night owl, than you have sort of designed your life around?
So maybe we try to shift you a little later.
Sometimes it's as simple as that.
But if I see, for example,
that you have more middle of the night awakening,
which you're nodding your head,
that's like what you've been experiencing,
then I wanna see, okay,
how much time are you spending in bed?
Weekdays versus weekends.
Are there some assumptions baked in here?
Like are you going to bed for always,
eight and a half hours a night?
And I would ask you, why eight and a half hours specifically?
You might say, well,
shouldn't I get eight hours of sleep every night?
Then we will talk about how everyone's different
and you may or may not need eight hours.
Even if you did 10 years ago, you may not now.
So one of the big pieces of CBTI is called sleep consolidation
and it's basically making your pizza smaller.
Like if you're making your pizza from scratch
and you have this much dough,
but you stretch it too thin to fit like a huge pie,
you're gonna have holes in the crust.
You don't have enough dough to go around, right?

So what if we just squeeze the pizza smaller,
make a Chicago deep dish style?
Have you been in bed for a shorter amount of time
to teach your brain to fill up that time
with good quality sleep?
Because quality always has to come first
before you can sleep more.
You may or may not need to sleep more,
but at the very least we need better quality sleep, right?
It seems like a very useful piece
of counterintuitive wisdom
that a lot of people think,
Omnions, I have insomnia,
therefore I need to focus on going to bed.
But in fact, a lot of insomnia
comes from too much bedtime.
It comes from centering the bed
and the bedtime too much in our lives
to extend your analogy.
We're making the pizza too large.
And if we constrict our bedtime a little bit,
I think the word you used was consolidate,
we're going to feel higher sleepiness
and that higher sleepiness is going to allow us
to not only fall asleep faster,
but also maintain sleep throughout the night.
Is that right?
Right, yes, not only more sleepiness
is going to be achieved through this,
but also lower hyperarousal.
Hyperarousal just means your mind or body
are too revved up for sleep.
And the way we're decreasing arousal
is, well, think about when the worst
of your experiences with insomnia,
when you're lying there awake for a couple of hours
during the night, you're staring at the ceiling,
you're like feeling resentful
that your wife is sleeping peacefully beside you.
You're wondering if you're going to get dementia from this,
you're anxious, frustrated.
Is that helping you go back to sleep?
Right, so if we actually spend less time

trying, because the trying is really sometimes
the worst thing we can do when we have insomnia,
if we just take the trying off the table
and drop that rope,
don't play tug of war anymore with sleep,
then sleep is actually more likely to come to us.
So I always teach that your relationship with sleep
is what we're focusing on here.
And if you want to have a good relationship with sleep,
you're not going to be that overbearing,
like creepy ex-boyfriend that like tries to chase down sleep
and monitors sleep and is really on top of sleep
and aggressively says,
you have to show up exactly when I want you to,
where I want you to.
I mean, that's not a good recipe for a relationship.
Whereas if we lay back,
create our environment that's welcoming for sleep
and actually have realistic expectations
and flexible forgiveness for our sleep to be,
you know, not a perfect robot,
then sleep is actually more likely to be your friend
and come to you when it wants to.
And your friend is a very good, loyal friend,
so she will take care of you if you just let her.
I find it really interesting how different approaches,
clinically and psychologically,
can have different effects on people.
Because I can imagine that for some people,
imagining their relationship with sleep
as a relationship with a friend
is incredibly useful for clarifying
the kind of relationship they want to develop
with their sleep.
For me, I'm a little bit more asocial
in the metaphors that I prefer.
I just want to know, like,
if I go to sleep at 10 p.m. and I wake up at 7 a.m.
and I am dealing with severe middle of the night insomnia,
what do I do in terms of time in bed?
And there, you know, someone in your position
just might say, well, look,
if you're trying 10 to seven and it's not going well,

try 1030 to 630, right?
Try 11 to seven, shrink the pie of sleep,
and that might sort of concentrate
the sort of the sleepiness molecules
so that they're like a little bit more active.
Yeah.
I do want to ask another question
about middle of the night insomnia,
which is sometimes called biphasic sleep.
I mean, I am just so interested in the science of this
and why our bodies seem in some primordial way
to want to wake us up in the middle of the night.
Can you tell me a little bit about what you understand
to be like the science of our sleep drive
and why our bodies might in some chemical way
want to break up the night like this?
Yeah, so naturally we all actually experience
two halves of the night, whether or not we realize it.
The first half is when most of your deep sleep happens
or also called slow wave sleep.
And that's the sort of the money sleep.
That's the thing that boosts your immune system
and heals your injuries and clears out the brain toxins.
That's a high priority sleep
that your brain wants to get done
in the first half of the night.
And that's driven by your homeostatic sleep drive.
On a chemical level,
this is the accumulation of something called adenosine
in your brain.
So throughout the day,
as you're awake going up about your business,
adenosine is accumulating, accumulating, accumulating.
It's kind of like a bank account
marking how long you've been awake
so that your brain knows how much sleep you need
to sort of recover from that amount of being awake.
So the more adenosine you have,
the more deep sleep and more sleep you're gonna get.
But once you're sort of halfway through the night,
you've basically burned through most of your adenosine
and you've gotten your deep sleep done.
But the second half of the night,

it's still not time to get up yet.
So the second half of the night
is driven by your circadian rhythm,
which we've already talked about as being your body clock.
So your body clock knows,
melatonin is so high, it's still the middle of the night.
So let's keep sleeping.
So those are the two natural halves of your sleep.
Now, sometimes the baton gets dropped
between these two legs of the relay race.
And there's nothing wrong with that
because in pre-industrial times in Europe, for example,
we have plenty of documentation
that people used to just get up
as a matter of routine in the middle of the night
and sing songs, have sex,
get the bread rising for the morning.
There's still cultures in the world
that get up in the middle of the night to do yoga or to pray.
So this is reflective of a natural biological thing
that happens.
But now in our modern capitalistic industrialized world,
we kind of expect our sleep to be squeezed in together
for those eight consolidated hours.
So we have more time to work and do other stuff.
And now that we have artificial lighting and blah, blah, blah.
So now we expect ourselves to sleep through the night.
We ask new parents.
Like the first thing we ask is,
oh, is the baby sleeping through the night yet?
As if that was the gold standard
of what should happen as early as possible.
But it doesn't have to be like that.
If you just naturally wake up at 2 a.m. every day,
and that's just what happens,
but you still get enough sleep overall
and you're functioning well and you're feeling well,
you're healthy, your relationships are fine,
then by all means, just do biophasic sleep
as if you were pre-industrial person in the whatever,
in Ireland, just do that.
It's interesting, yeah,
because when my wife and I wake up at 2 30 a.m.

and start blasting Taylor Swift and singing Midnights,
the neighbors don't seem to appreciate it.
And I'm like, come on people,
this is just medieval biophasic sleep.
This is what our homeostatic sleep drive wants to do.
How are you so ignorant as to not understand
our need to sing Taylor Swift at 2 a.m.?
I don't know if medieval people had Taylor Swift.
They were clearly missing out, but...
They had her essence in their hearts, I think.
She's eternal enough.
I wanna end with a rapid fire round
where I ask you about some of the trendier sleep hack
suggestions and you give me an expeditious do it,
skip it, or don't know enough
with maybe just like a brief elaboration.
Before we start this round,
I know that any good scientist in your position
is gonna want to offer the caveat
that we're talking about averages here
and some things work for some people,
some things don't work for some people.
If playing death metal at midnight, put someone to sleep,
that's fantastic, but you're not gonna prescribe slipknot
and insane clown posse to insomniacs
and that's just the way things work.
Usually not.
Usually not, right, exactly.
Everyone is different.
Okay, so we're gonna do five of these.
Number one, sleep trackers.
That is not only the things that you wear on your arm,
but also a kind of,
and I hope I'm not stacking a deck here,
obsession with returning to one's sleep number
to visit or measure the quality of sleep over time.
I am super excited about these as a sleep researcher
and I think for many people it can be helpful
to show your overall patterns.
But with a caveat that we don't wanna get too attached
to these numbers because they are not necessarily
fully accurate and also there's nothing you can change
about your percentage of REM, for example.

So like, why track it?
So just don't make it more anxiety provoking
than it needs to be.
I do think that the kind of people
who are probably most likely to use sleep trackers
are the sort that are anxious to know
what number is spit out by the tracking of their sleep.
So I'm clearly revealing my horrific bias here.
I'm way against sleep trackers
and 20 listeners for whom sleep trackers
have been revelatory in your life, good on you.
They did the opposite of work for me.
Number two, viewing sunlight very early in the day.
Yes, love it.
It doesn't necessarily have to be early in the day.
Any time during the day is better than not.
More sunlight during the day, better.
And why is that again?
Because that tells our circadian rhythms
when it's day and when it's night.
And the less confused it is about the timing,
the better quality sleep and better quality wake
your brain is gonna give you.
That's right, because deep down inside all of us
is a caveman in a cave without access to sun
that wants to wake up 20 minutes later every single day.
So we have to interrupt that sort of
chrome magnet vestige that's inside of us.
Number three, lettuce water.
So you would have to eat a truckload of lettuce
in order for there to be any sort of sleep effect.
So probably no.
And maybe unpack just a little bit
about why I just said lettuce water.
Because this is a TikTok trend that got really popular
and it's based on these studies in mice
where these mice got lettuce seed concentrate.
So think about how small a mouse is
and how much of that chemical is in that concentrate.
So if you extrapolate that to humans,
we would really have to drink like a truckload
of lettuce water for that to have any equivalent effect.
And by the time you drank that much water,

you've spent all night drinking lettuce water and not sleeping.
So strong no on that one.
Number four, taking Advil PM every night
if you have trouble falling asleep.
Oof, I know for some people this feels like the only option
and I certainly don't judge that.
Long-term this is probably,
I don't know about the medical effects,
but long-term this probably will have psychological effects
such that you develop psychological dependence
on taking something to fall asleep
and you lose confidence in your own ability to sleep.
Number five, watching the same TV show
every night to fall asleep.
Sure, why not?
We all have our sleep associations,
whether it's like taking a shower or having white noise.
If you like it, sure, no problem.
Any sleep routine that you have
that just personally has worked really well for you,
but I'll share first to get the ball rolling.
I tend to fall asleep very easily now
and that was not always the case.
And for whatever reason for me,
the answer was re-watch an episode of television
that you've watched at least 50 times before.
I find it so relaxing to have a little 10-minute ritual
where I dip into a little bit of TV on my iPad
that I have absolutely no anxiety
about how things are going to proceed.
I can tell you every single line of these TV shows,
Arrested Development and Breakable, Kimmy Schmidt,
I can tell you every single line.
Thank you.
It's not about enjoyment.
It's about, as you just said, this sort of queuing
to begin to really, really come down
that curve of wakefulness.
Yes, it's about queuing the beginning of your wind down.
It's also about taking up just enough of your attention
that your mind doesn't go to anxious places
that then ends up spiraling.
It's almost like counting sheep is not good enough

because that's too easy.
Your mind will start spiraling anyway
if you're prone to worry.
But if you do some math, go down by 13 starting from 1,000,
then it's just hard enough that it takes enough attention
that you let yourself, let sleepiness come to you
before your mind starts spinning.
So watching an episode of Friends, for example,
would be perfect for that too.
The other thing about counting sheep
or even these other sort of really boring activities
that sometimes people encourage insomnia actually do
at the beginning of falling asleep
or in the middle of the night is that it's just that.
They're boring.
They're not fun.
I don't want to have an aversive relationship
to anything surrounding sleep.
If in the worst case scenario, I can't sleep,
I want to look forward to that in a small sense.
Like, oh, I can't fall asleep.
I'll just watch a little bit more of Veep.
And I won't be counting sheep.
I'll be counting profane words
because it's an incredibly profane show.
But the fact that it's a little bit fun
without being particularly arousing,
without being particularly thrilling
because I've watched these episodes 50 times already,
means that or at least it's helped me
to reduce my anxiety in the event,
in the sometimes inevitable event
that I have a broken up night.
That's, I think you really put your finger on
and helped me articulate why it's been so helpful for me.
Yeah, absolutely.
You know, I actually am a little bit of a rebel
in this sense in the sleep researcher community
where a little split on this.
Most people say do something relaxing and boring
to like help yourself, you know, get back into sleepiness.
But I say honestly, do whatever you enjoy.
Even if that's playing a video game, you know,

like usually it's not gonna be playing a video game
for most people, but don't sit there and read a phone book
or like listen to the most boring book ever, you know,
do something fun and enjoyable.
The whole point is that we don't want to be afraid
of nighttime.
We don't want to be dreading the act
of being awake during the night
because there's nothing inherently wrong with that.
We just have a little extra me time to enjoy.
And if you feel that way, you're, you know,
ironically actually less likely to wake up
or stay awake for a really long time
because there's nothing inherently threatening
about being awake.
You get to look forward to it.
Dr. Jade Wu, thank you very, very much.
Thank you so much for having me.
This was fun.
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