On the topic of Medical Marijuana  (6/2018)
Original Post: I live in a state about to launch a medical marijuana program. However, my doctor and the practice he’s a part of refuse to participate. This is a wide spread issue in states with medical cannabis laws. What should I do?

Dr. Bruno’s Response: It’s way early in the medical marijuana debate to expect everyone every to be on board. Federal law still considers marijuana illegal even if states don’t. Everyone needs to get credible information, weigh the pros and cons of every self-care issue. If you think marijuana will be of help you’re Going to be forced to doctor shop.

On the topic of seeing a Physiatrist  (6/2018)
Original Post: I went to see a Physiatrist (Rehabilitation Physician). When I asked if she knew about PPS her response was, ”YES I do and have treated several patients with it. I had a colleague who had to retire from practice because of it." When she examined me, she asked me why I told her I had polio only in my left leg." She went on to explain that polio affected every muscle in my body, even if they did not appear paralyzed or even weakened. WHAT a surprise!

Dr. Bruno’s Response: She’s right – let’s clone her! Every muscle in your body was affected by polio, even if you had no symptoms at the time. This is why polio survivors often report new muscle weakness in their “good” limbs and no change in the polio-affected ones.

On the topic of Muscle Pain and Statins  (6/1/2018)
Dr. Bruno’s Original Post: Muscle pain is “real” only 50% of the time?

How Many People Can’t Tolerate Statins?

Medical researchers, normally a genteel lot, disagree sharply on the extent to which side effects from statin drugs are a problem.

By Richard Klasco, M.D.
New York Times
June 1, 2018

Q. Are there studies concerning the number of people who cannot tolerate statins?
A. Yes. Studies show that about 5 percent to 10 percent of people are unable to tolerate statins, largely because of muscle aches and related side effects, including potential muscle damage. But many people who have been labeled intolerant to the drugs probably are not, and medical researchers, normally a genteel lot, disagree sharply on the extent to which side effects are a problem.
Proponents of statins argue that concerns about safety have been overblown, with some even describing the research on side effects as “fraudulent.” Opponents maintain that the concerns are real. Both sides agree that the debate is important, since a patient who has been inappropriately prescribed a statin risks muscle damage. But a patient who has been inappropriately denied a statin risks heart attack.
Statins can cause a spectrum of muscle symptoms. Muscle aches, known medically as myalgias, constitute the greatest number of muscle complaints and the greatest area of controversy. More serious muscle problems, on the other hand, are not controversial, since they are a clear contraindication to treatment with the drugs.
The psychology of myalgias involves the nocebo effect, the flip side of the placebo effect. Whereas a placebo is an inert substance that exerts a beneficial effect, a nocebo is an inert substance that exerts an unpleasant effect. The Effect of Statins on Skeletal Muscle Function and Performance (STOMP) trial examined the issue of muscle symptoms directly. STOMP studied 420 patients who had never received statins. About 5 percent developed myalgias while taking the statin atorvastatin (brand name Lipitor), and about half that many developed myalgias while taking placebo, or more precisely, nocebo.
The GAUSS-3 trial examined the question from another angle. GAUSS-3 studied 491 patients who had been labeled intolerant to at least two different statins. Surprisingly, more than half of these previously intolerant patients were able to tolerate low-dose atorvastatin. While the rest developed myalgias on atorvastatin, half as many also developed myalgias on placebo. The key for patients who have muscle symptoms while on statins lies in a blood test known as creatine kinase, or CK, an enzyme found in muscles. High levels of the enzyme indicate muscle damage. If muscle damage is present, alternatives to statins should be used. If muscle damage is not present, temporarily discontinuing statins — in what doctors call a “drug holiday” — and restarting at a lower dose may be tried. Alternatively, many people who are intolerant of one statin may find that they are able to take a different statin without difficulty.
Diet, exercise and many other options are also available for people who are ultimately unable to tolerate statins. The only mistake would be to allow dangerously elevated cholesterol to go untreated.


On the topic of Anesthesia (6/1/2018)
Original Post: I've always been very sensitive to anesthesia of any kind. But now I find it takes me a couple of days to recuperate – even from dental work. What do I tell my doctors?
Dr. Bruno’s Response: Tell your doctors about your sensitivity and that you need less anesthesia. There are two outstanding Anesthesia Warning Cards available HERE. The first is the original published by NJ in 1998. The second is the updated version – with a “scan” code for easy access by the physician reading it. Of greatest importance, the BIOGRAPHIES of those of us who participated (myself, Dr. John Bach, MD., Dr. Selma Calmes, MD. and Dr. William DeMayo, MD) are easily visible with a simply “scan” from a smart phone as well. Just print, fold and put in your wallet.
https://www.papolionetwork.org/-anesthesia-warning.html

On the topic of Sleep (6/13/2018)
Dr. Bruno’s Original Post: When in doubt? Nap!

Why eight hours a night isn’t enough,
according to a leading sleep scientist

By Georgia Frances King
Quartz Media

For something that we spend a third of our lives doing (if we’re lucky), sleep is something that we know relatively little about. “Sleep is actually a relatively recent discovery,” says Daniel Gartenberg, a sleep scientist who is currently an assistant adjunct professor in biobehavioral health at Penn State. “Scientists only started looking at sleep 70 years ago.”

As anyone who has lay awake at night contemplating the complexities of the universe can attest, sleep is a slippery beast. It involves a complex web of biological and neurological processes, all of which can be thrown off by something as simple as a partner’s nasal trumpeting or a coffee too late in the day.

There are also many, many misconceptions about sleep: that you can “catch up” on the weekend for lost hours of shuteye. That you can get by on four hours’ sleep a night. That a nip of whiskey before bed helps you sleep better. Even that eating cheese before snoozing causes nightmares.

To set the record straight about being horizontal, Quartz spoke to one of the world’s most-talked-about sleep scientists. Daniel Gartenberg is currently working on research funded by the National Science Foundation and the National Institute of Aging and is also a TED resident. (Watch his talk on deep sleep here.) He’s also an entrepreneur who has launched several cognitive-behavioral-therapy apps, including the Sonic Sleep Coach alarm clock. All that with 8.5 hours of sleep a night.

Some topics we cover:

- why 8.5 hours of sleep is the new eight hours
- the genes that dictate if you’re a morning person or a night owl
- why you should take a nap instead of meditating
- how sleep deprivation can be a tool to fight depression
- why sleep should be the new worker’s rights
- and tips on how to get a better night’s rest (hint: it’s not your Fitbit)

You can also read Gartenberg’s comments on “sleep inertia”—the scientific reason why you feel so groggy when you wake up—here.

Quartz: Why do we need sleep?

Daniel Gartenberg: Every organism on the planet sleeps in some fashion, to some degree—even the basic fruit fly. What makes sleep so essential for our wellbeing comes down to three main things: to save our energy, to help our cells recover, and to help us process and understand our environment.

This third one is what I study. The “synaptic homeostasis hypothesis” is this idea that during the day, we make all these connections with the world around us. It used to be like, “Don’t go over there—the lions live there now.” Now it’s like, “What did Barbara say to me in the office?” These excitatory connections we make during the day result in the neurons in our brains getting overall higher activation. Then during the nighttime when we sleep, we have a downregulating process where the things that didn’t really matter to your survival sink to the bottom, and the things that are most relevant to your survival rise to the top. What deep sleep does is all the neural processing, and what REM sleep [rapid-eye-movement sleep] and light sleep do is basically integrate that into your long-term personality and understanding of the world.

What other differences are there between deep sleep and REM sleep?

A lot of people don’t understand that these are two very, very different processes. A lot of people probably learned from basic psych in high school that you have these sleep stages: light sleep > deep sleep > light sleep > REM, and repeat. As you sleep more, you get less and less deep sleep, and also if you sleep-deprive yourself, you get more deep sleep.

During deep sleep, you get these long-burst brainwaves that are called delta waves, but during REM, your brainwaves are actually functioning very similarly to waking life. Your body is also paralyzed during REM—it’s a very noticeable physiological difference. You also lose thermo-regulation, meaning if it’s hot in your environment, your body gets hot, kind of like you’re a chameleon.
Your whole thing is that deep sleep is more important than REM sleep. Why?

It’s an ongoing debate in the literature—really, it’s both. Deep sleep is really important, but REM sleep is also important. We know that the human growth hormone, cell-recovery things, and the ability to process new information are associated with deep sleep. REM sleep is basically the processing of information.

Asking for the workaholics in the room: Do we really need that much sleep?

A professor I collaborate with at Penn State named Orfeu Buxton says that 8.5 hours of sleep is the new eight hours. In order to get a healthy eight hours of sleep, which is the amount that many people need, you need to be in bed for 8.5 hours. The standard in the literature is that healthy sleepers spend more than 90% of the time in bed asleep, so if you’re in bed for eight hours, a healthy sleeper might actually sleep for only about 7.2 hours.

8.5 hours of sleep is the new eight hours. That being said, some people are short sleepers: You can do a test to find out if you have genetic makeup that makes you a short sleeper. That’s rare, though, so by and large, people are not getting enough sleep. Getting half an hour less than what you need to really adds up over a week period.

To see how much sleep you really need, my professor suggests that when you go on vacation, try to stick to your normal bedtime and then see what time you wake up. With no stressors or time to get up, you’ll just fall into a natural pattern, and that’s probably how much sleep you actually need.

I normally get around six to seven hours of sleep a night and feel fine. But is that just because how I feel has become my normal operating mode, and I could really be functioning at a higher level?

Right. That’s like the fish and the fish bowl phenomenon: The fish doesn’t know that he’s in the fishbowl, nonetheless that he’s in water. Also, when you’re sleep deprived, research has shown that you’re really bad at being able to tell that you’re sleep deprived.

A lot of this has to do with stress in our environment and our external need to work all the time. This is what’s driving the fact that we’re sleeping so poorly nowadays.

How else does the workplace affect sleep?

I think of sleep like the new worker’s rights: We’re being worked to the point that we’re not sleeping, and it’s having physical detriments on our health and wellbeing. People should be able to sleep like they’re able to get healthcare. This also means making our work environments more conducive to sleep. For optimum productivity, we need around eight hours of sleep, right? But that doesn’t have to be in one go. Maybe I’ll get a little less than that during the night, and then I’ll take a 20-to-30-minute power nap at midday. There’s a siesta for a reason! New Yorkers oftentimes try to pound through with coffee and whatever, but giving in to your natural circadian rhythm during that afternoon lull might be a good thing. We weren’t made to produce for eight hours straight.

Let’s talk more about circadian rhythms. What are they, and why are they responsible for that mid-afternoon slump?

We evolved from bacteria in the ocean that could differentiate sunlight from darkness—that’s what ended up forming the human eye. That means every organism is responsive to a circadian rhythm that’s largely dictated by sunlight. The photo receptors in our eyes pick up on sunlight, which controls the release of melatonin and all these other neurotransmitters that dictate your energy levels throughout the day.

You have a peak moment of awakeness during the morning. After lunch you usually have a glucose spike, especially if you have a big heavy lunch, like a cheeseburger. That glucose spike combined with a circadian dip gives you a period of fatigue between around 2 and 4pm. You’ll then have another spike in alertness right before dinner, and then you’ll start getting tired again closer to bedtime. That’s your 24-hour circadian rhythm, basically.

Then there’s also something called “chronobiology.” You actually have genes that dictate whether you’re a morning person or an evening person.

Wait—what? Really?

Yeah! If you’re a morning person, they call it a lark. If you’re a night person, they call it a night owl. Your genes give you a greater proclivity to being a lark or an owl. And then some people have genes that make them very flexible. The environmental cues they react against are called zeitgebers.
Lightsabers?

Zeitgebers! It’s this weird German word. There’s a lot of cool words in sleep: like the photo receptors control the release of melatonin by sending signals to the suprachiasmatic nucleus, just like supercalifragilisticexpialidocious.

You actually have genes that dictate whether you’re a morning person or an evening person.

Anyway, basically your biggest zeitgeber is sunlight, and that’s the environmental cue that controls energy levels as well. But then also timing of meals, exercise, and having a consistent bedtime are all zeitgebers that impact your circadian rhythm. A bigger part of the problem is that we’re indoors so much now, so we don’t get that natural occurring sunlight when you wake up in the morning. That’s one of the best things that you can do to entrench your circadian rhythm.

If your circadian rhythm is off, it negatively impacts your sleep quality. So having that consistent rhythm of going to bed and getting up at the same time will actually make your sleep more regenerative at night. Going for a walk outside and getting that sunlight in the morning is the best thing to do to wake up. Your circadian rhythm isn’t a fixed thing: It’s actually shiftable based on your environmental cues.

If you wake up in the middle of the night (say, to go to the bathroom) but get back to sleep quickly, does that screw around with your sleep quality?

It varies. There’s no clear answer. In our studies, we’ll play really loud sounds that people have no conscious awareness of at all: We can play a sound literally at 70 decibels, which is like someone screaming, and that’ll wake them up briefly and then they’ll go right back into the sleep stage that they were in. Other times you can get a full awakening, and you’ll have to go through the process again.

It’s actually pretty normal to wake up during the night, anyway. In The Canterbury Tales, one of the oldest manuscripts in English culture, they describe “second sleep.” There’s some evidence that we used to go to bed when the sun went down, then wake up for a little bit at night—putter around, make sure we’re not getting eaten by a lion—and then go back to sleep. So it’s pretty normal to like wake up in the middle of the night and use the bathroom or whatever.

How is society changing our relationship with sleep? What will be the consequences of this?

Gallup has reported that over the past 50 years, we’re sleeping a whole hour less per night than we did in the 1950s. That’s a lot. A lot of that has to do with having TV on all the time, and mobile phones are taking it to the next level. But I think the biggest issue right now is the lack of work/life balance. I mean, I’m an entrepreneur, so I feel like I’m basically always “on”.

A lot of people have jobs where they’re getting emails all hours the night, and there’s no longer a nine-to-five schedule. I think that’s why meditation is so in vogue right now. But I actually think sleep is a more regenerative process than meditation. A lot of times people talk about doing meditation around midday, but for most people I would recommend a quick power nap instead of a quick meditation.

But if I try to take a powernap at lunch and can’t get to sleep, haven’t I just wasted 20 minutes of my day that I could have been meditating—or working?

Even when you close your eyes and turn off your brain for little bit—even if you don’t fully fall asleep—your brain creeps into theta waves. Similarly, when you meditate, you get a little bit of theta. So if you’re one of these people who really has a hard time with napping, maybe meditation could be better.

Taking a break—whether it’s meditation or nap—during the circadian dip can be much more conducive to productivity.

The most important thing is taking that time off—it’s more conducive to your productivity. A lot of times people think they can like fight through and push harder and harder and harder to get better results, but sleep can give you that, too. When you transition in and out of sleep, your brain produces theta waves, which help you think more divergently. That’s why a lot of times when you wake up from a power nap or from sleeping, you’ll be able to solve that intractable problem that you couldn’t earlier in the day. That’s one of the reasons I think taking a break—whether it’s meditation or nap—during that circadian dip can be much more conducive to productivity.

This is especially true for creative jobs. Jobs used to be very manual, but as jobs are becoming more and more cognitive, I think caring for your cognition is going to become increasingly important for the work.
What are some tips for getting a better sleep?

You want a cold, quiet environment with no light: That’s basically the ideal way to improve your sleep quality. However, people have a different ideal sound, light, and temperature environment to improve their sleep quality. We need stimulus control: You want to save the bedroom for sleep and sex.

SOUND: We focus on sound a lot. Quiet environments are going to improve your sleep quality. Your brain has these micro arousals throughout the night without you being consciously aware of it—even an air-conditioning unit turning on wakes up your brain. So blocking out noises is a low-hanging fruit to improve your sleep quality. Bose just released an earbud that you can sleep with, for example.

There’s this new finding where playing sounds at a certain frequency when your brain is in deep sleep actually increases the percentage of time spent in deep sleep. We’re publishing this paper in Society for Neuroscience Conference in a couple of weeks, and it’s basically what my TED talk is about. Playing these pulses at the same frequency as your deep-sleep brainwaves primes more deep sleep. Scientifically speaking, it’s a similar process as transcranial direct-current stimulation, except it doesn’t use electricity—just sound. Sound gets transmitted into electricity because you’re picking up on the auditory cortex while you’re sleeping.

TEMPERATURE: This is a big problem, especially if you have a sleep partner. Everyone has different natural body temperatures, and usually men run hotter than women, but it can go either way. That can be a big issue if you have a different body temperature, because then no one’s happy. I wrote this article called “Split blankets, not beds,” where I said that you shouldn’t share the same comforter. Of course it’s nice to share, and I do that at some points, but it’s also important to have different bedding on your bed so you can have that lighter sheet or comforter to try to mitigate differences in body temperature. There’s also something called a chili pad. You put on half of your bed and it’ll dictate the temperature level on your half if you run at a different temperature than your sleep partner.

LIGHT: The other thing is no blue light close to bedtime. There are a lot of studies that screen time close to bed is bad. One of the ideal ways of using our app is to connect it to your Bluetooth speakers so that you can put your phone in another room: There is something important to not having your phone in reach, because then you’re looking at the screen and getting the brightness. If you live in the city and there’s bright lights at night, having blackout shade can also be super useful.

STRESS: When you’re stressed, your flight-or-fight response is active during the night, and your sleep quality is going to be shallow. It’s natural: If you have kids, you are programmed to be able to respond to your environment during the night to make sure you’re not getting eaten by a predator. Parents have this issue when their fight-or-flight response system is overly activated by worrying about their kid, and that worry actually makes their sleep quality worse. One of the things I recommend to people who have a racing mind and worrying thoughts about work is to segment a time to get it out during the day—encapsulate it in a little mental box so you’re not laying down in bed and just having your mind race about all these things.

How do you feel about sleep trackers and wearables?

Probably the most common wearable to measuring sleep right now is the Fitbit. I’ve studied these devices in depth in a well-controlled laboratory experiment where we’re monitoring brainwaves. I can say the Fitbit is pretty accurate in measuring when you’re asleep and when you’re wake, but when it comes to measuring sleep stages, basically any device that measures heart rate, like the Apple Watch, is totally inaccurate. That’s because they don’t sample at the frequency necessary to get a good read on your sleep stages. Fitbits can also cause bigger problems, because they stress you out about the fact you think you’re not getting enough deep sleep—even though they’re not good at accurately measuring sleep stages.

What about people who mess with their sleep cycle and try things like the da Vinci method, where you take a 20-minute nap every four hours?

That polyphasic sleep stuff? I mean, it’s just not enough sleep. It’s ridiculous. I haven’t seen a study that empirically shows that it’s helpful. There is certainly a false myth that we need eight hours of continuous sleep: I think it’s possible to have your sleep be a little bit broken up and be perfectly healthy—but getting that eight hours is crucially important. The thing is that the placebo effect in some of these polyphasic sleep methods runs really high.
There have also been some studies showing that sleep deprivation could be a tool to combat persistent depression. How do you feel about that?

That was really interesting. If you have an extreme case of depression, sometimes some therapists will sleep deprive you a little bit. It’s basically to activate your fight-or-flight response and jolt you out of your depression. But things like empathy and working with others are also impacted when you’re sleep deprived, and you’re also more sensitive to pain. Some people are studying this link to address the opioid epidemic and through actually sleeping better: Chronic pain might be associated with deep sleep.

https://qz.com/1301123/why-eight-hours-a-night-isnt-enough-according-to-a-leading-sleep-scientist/

**On the topic of Muscle Strengthening  (6/15/2018)**

Original Post: I am 44 years old and my muscles are weak. I wonder if I can walk on the treadmill at low speed to strengthen my muscle.

Additional Post: That’s the problem with PPS. You can exercise too much, but you can’t just not do anything either. Some exercise is good, but if it takes more than 10 minutes to recuperate, next time do less.

Dr. Bruno’s Response: NO muscle strengthening exercise, EVER! Do stretching and range of motion, but not muscle strengthening. If ANY activity hurts or causes significant fatigue, STOP!

Here is an article from a very experienced physical therapist from The Post-Polio Institute:
https://www.papolionetwork.org/uploads/2/7/7/2/27726699/physical_therapy_and_pps_by_shanti_chacko_molayal.pdf

**On the topic of Participating in a Study  6/18/2018**

Dr. Bruno’s Original Post – Contact them directly if you are interested in participating in this research study from Johns Hopkins:

**STUDY TO FIND GENETIC SUSCEPTIBILITY CAUSING AFM (ACUTE FLACCID MYELITIS)**

We are conducting a research study through the Johns Hopkins Schools of Public Health and Medicine involving patients with acute flaccid myelitis (AFM), a polio-like condition for which the cause remains unknown. We theorize that there is an underlying genetic susceptibility that causes the severe reaction we are seeing among a small subset of children exposed to the causative agent (from August 2014 – January 2018, 320 cases were reported to the CDC). Because of the similarities to polio, we are expanding our study to also include polio survivors.

Briefly, our study is seeking to enroll individuals who had paralysis following infection with poliovirus. We will ask to collect a saliva sample from each patient, which we will extract DNA from. We will also ask them to fill out a survey with a few brief questions related to personal and family medical history. We will then compare their DNA to that of AFM patients to search for genetic variants that both groups share. You can find further information in the attached study materials.

Please let us know if you have any questions or concerns about the study. We look forward to hearing from you.

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