

Sleep Regulation

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The topic of sleep has been a fascination of mine since I was young. It always seemed such a waste of time to me, personally. However, good sleep is important to living a healthy, balanced and full life. These notes are the result of my personal research and experimentation along with my experience in advising others with sleep problems. None of this is meant as an endorsement or any sort of claim to try anything. If you do decide to engage with the information within, please be aware that it is at your own risk. Keep in mind that people are all different and therefore no one solution works for every person. Even very simple rules don't apply to everyone and anything can have a paradoxical effect. Keep careful notes (and refer back to them) if you choose to do any kind of experimentation on yourself!

How Sleep Works:

Sleep has two major components: physical and mental. Each of these aspects provides signals to either trigger you to go to sleep or to wake up from sleep. Matching up these signals is important to provide your body with a clear goal to attain. We tend to pay very little attention to our sleep and how it works. We often choose to manipulate our sleep (sometimes unknowingly) towards our immediate goals, rather than focusing on our long term health.

Light is one physical component to sleep signaling which you have some control over. Light is an environmental influence that sends a signal to our body about going to sleep and waking up. Full spectrum lights have been used for years to help people wake up or stay alert in times when real light is not available, although it is preferable to use natural light. Keeping light low (especially by the removal of blue light) near bedtime signals us that the time to sleep is near. We can also use light to help us to set our circadian rhythms. Natural light during the day helps us to synthesize signaling chemicals that help our body to progress through time. Sleeping isn't all about being in one state or another, the progression is important. Simply experiencing the sunrise, sunset or full noontime sun (for at least 20 minutes) can all act as powerful signals to your circadian rhythms which will enhance your sleep.

Another important signal comes from our activity level. Perhaps oddly, if you are too physically active too close to when you wake up, you are setting yourself up for a nap later on. As most of us know, being too physically active close to bedtime causes disruption in your sleep as well.

Additionally, what and when you eat matters – these are powerful physical signals that impact your circadian rhythms as well as directly impacting sleep itself. What many people do not know is that we have a glucose cycle which is semi-independent of our circadian rhythms. If you nap for 20 to 40 minutes, that is most likely a glucose problem. Any issue where you are not getting a full, healthy cycle of sleep from REM to deep sleep is likely due to what you are eating when, not a lack of healthy sleep. Making certain that you aren't too active at the wrong times, regulating what you eat and when you eat are all important aspects to managing sleep properly.

The mental components of sleep involve how quiet your mind is. Quieting your mind can be controlled through meditation, engaging in calming activities and even inducing physical exhaustion. There are relaxing practices (I have one I call Zen Sweeping) which are physical in nature but have the effect of quieting the mind. One simple way to quiet your mind is through breathing. Simply paying attention to your breath is a great way to calm down your mind. If you go to bed with things on your mind, you are likely not to be able to sleep well. This not only impacts your likelihood of getting to sleep, but it impacts how easily you can wake up. Going to bed in a good frame of mind is an important component of controlling your sleep. Avoid being angry before bed and meet the day with a positive attitude – this really helps how you sleep.

Elements of going to sleep:

There are some key elements that help you fall asleep. In terms of mental elements the most important are:

1. Reducing Anxiety at least an hour before bed (movement practice, seated meditation, etc.)
2. Closing out the day (make peace with what you did and did not accomplish)
3. Looking forward to waking up (have a goal for the next day, even if it is small or a continuation from today)

First and foremost, you need to get as calm as you can later at night. Things which cause anxiety in some form need to be reduced. This includes physical and mental components. Here are the things which can cause you to have too much anxiety before bed:

1. Eating too soon before bed time (do not eat at least three hours before bed)
2. Stimulants (caffeine, spices, tea that isn't calming)
3. Sugar (all types will signal you to wake up and do stuff, be careful with consumption of sugar)
4. Physical exertion (exercise, dancing, etc.)
5. Worrying (this is a form of anxiety you need to control to be calm enough to sleep well)

Most of these are pretty easy to avoid, however, worrying is in a category of its own in some sense. The key here is that you need to have a reason to go to sleep, both positive pressure and negative pressure. The positive pressure to sleep is around having closed out, or completed a day. Doesn't much matter what you did or did not get done, only that you make peace with it. Be accepting of what you were able to accomplish – if nothing else, you survived another day and that is enough. Set a goal for tomorrow, perhaps this goal is part of a larger goal or project. This gives you the ability to look forward to waking up. Being able to look forward to starting a new day helps you get some interest in going to sleep.

You might want to keep a journal that you write in before bed, this could include your daily accomplishments or even disappointments, as writing things out helps you think about them. I consider writing a form of prayer, verbal prayer will do as well, both will not hurt. Being aware of your state of mind before sleep can be a powerful ally in your battle for a healthy relationship with sleep.

Elements of waking up:

1. Having set goals the night before – this includes long term and short term goals (for parts of the day)
2. Sleeping at the right temperature – this varies from person to person, but sleeping colder is generally better
3. Having an immediate goal(s) upon awakening – like take a shower, make breakfast, make the bed, etc.
4. Getting out of bed immediately upon waking up – this is a key component to avoiding the coddling which sleep provides as a way to keep you addicted to more sleep than you may need

The key to waking up is to want to wake up and to do so immediately when you are able to. As with going to sleep, you need positive pressure (start your day) and negative pressure (the more time in bed the less productive I'll be) in order to wake up properly. Goals and attitude are important in the process of waking up. Having a thing to wake up for is important but we respond not just to goals, but also to the potential of harm. Think of the time you'll lose and how tired you'll be if you stay in bed. Sleep, like many things, can be as addictive as a drug. If you stay in bed, you will increase your likelihood to become depressed, or the depth of depression or negative emotions.

Here are some tips for waking up:

1. Limit physical exertion after waking up, too much too soon can be harmful
2. Use natural sugar to help encourage your system to wake up properly and completely
3. Enjoy the quiet time after getting up
4. Do not eat solid food when you awakening
5. Splash cold water on your face first thing if you feel that helps
6. Write in your dream journal if you keep one.

Proper Sleep Etiquette:

The elements of a good healthy sleep involve understanding the role of light, eating, exercise and attitude in terms of their impact on your sleep. Sleep is a habitual thing that you must train, actively in order to make it the best that it can be. Much like your body, sleep, once stabilized and healthy, can be stretched a bit to improve it. What I have found is that it is easier for most people to change the time they go to bed rather than the time they wake up. Pick a wake up time, set an alarm, use this wake up time every day of the week for at least two months. If you naturally stay up late, no worries, setting your alarm for say, 5am and sticking to it for the first week will force your body to sleep at an appropriate hour that is right for you. Scheduling your sleep is a key aspect of a good, healthy sleep.

In the case that a bedtime doesn't work well for you (it takes at least a month of training and failing to know) then try setting a bedtime and seeing if you can get to bed at a reliable time every night for a month or two – I don't recommend an alarm, those aren't good for you to go to sleep, but perhaps a soft reminder noise will do. Getting a schedule in relation to nature is really important and maintaining a time slot that allows you to either sleep or wake up regularly is a good way to start.

Some people require darkness to sleep – try a blind fold if you must. Other folks require random noise to sleep, go ahead and put on a fan or something if it helps. Experimenting with different ways of sleeping is a must to find the best fit for you. Any ritual which helps you to sleep, to start preparing to sleep, or gets and keeps you out of bed in the morning is appropriate! Find the things that work for you that aren't based so much on stimulants or depressants.

Having a calm mind always helps sleep. If you are too wound up during the day, it may be harder to sleep. Thoughts which run rampant during the day should be dealt with via movement. Exercise (Tai Chi, Yoga, cardio, dead lifting, etc.), meditation (contemplation, reflection, prayer, etc.), and well timed eating patterns can help you be calmer at night. Intention matters when it comes to what you do, this includes sleep. If you want to have a healthy sleep, you need to intend to do so and intend to engage in the practices (including experimentation and inevitable short term failure) that lead you toward this goal.

Changing Sleep Times:

When you are first adjusting your sleep times to something stable, it is important that you do so with caution. Generally, once you have a stable sleep pattern that has been going for six or more months with a good deal of regularity, then you can be a little less vigilant in your approach and your body will auto-adjust if you need to change your patterns.

Here we shall address what I have done to adjust sleep to make it stable enough to then start changing the amount. Quality and consistency must come before you start changing up too much of the sleep cycle itself, otherwise, your mind and body may well fool you for weeks into thinking you can get by on less sleep and a crash will happen. Time and care are the only ways to make certain that you have a solid sleeping platform that is safe to alter.

As mentioned earlier, most people do best when setting a wake up time! Waking up is easier when you do it with an alarm (in the beginning, once you have a stable pattern you should wake up naturally at the same time every morning). Waking up is best done in anticipation of the work to be done for the day and a recognition of the miracle that you wake up at all. If you think about it, there is no clear, intelligible reason why we should be waking up, sleep is so nice and restorative. However, we clearly need to be awake to feel the opposite of sleep and make progress in the world. Better sleep restores us and allows us to perform optimally during the day.

Having a stable wake up (or bed) time allows us to set a baseline to change. When we change to another time we need to do so in hour or half hour increments, slowly, a week or two at a time. This means that if you currently wake up at 9am and you want to get to 6am, it is best to do so by trying to wake up at 8:30am or 8am for a week or two before making another change. Most people feel if a half hour or an hour works and will feel once they have adjusted (do not make another change right after you feel you have adjusted, give it a few days to settle in before changing times again). The same goes for changing a stable bed time.

Reducing Total Sleep Time:

These tactics are something I have been refining for people for most of my life. Not everyone can run on reduced sleep, although, I have yet to meet anyone that this is true for. The US military keeps their soldiers on reduced sleep schedules with fairly regular success. This fourth iteration of my hypothesis and methods for reducing sleep are hopefully clear enough for anyone to benefit from.

There are reasons to reduce your sleep time, some of which might be unexpected. First off, you get more time during your day, which is a huge advantage to getting things done. Perhaps more importantly, reducing sleep properly improves memory and learning during the day! Amazingly, if you follow a proper schedule that includes down time/quiet time, you will improve all aspects of your life by becoming more contemplative. Finally, reduced sleep allows you to more effectively manage your time by providing you a template for running aspects of your life and organizing it towards greater efficiency overall.

Now to the hypothesis that I'm working from. From my studies, it seems as though only twenty to forty minutes a night are required to get our physical systems back in shape on an average day. Most of our physical toxicity seems to clear itself up rather quickly overnight, despite the size of our bodies. Sleep itself appears to be more about the cycle than the total time. Your body will take more time than it needs in order to conserve energy in the short term when actually, a bit of discipline (just as with physical exercise) proves that straining your lazy sleep cycles a bit results in better sleep. Sleep appears to be a function of the need for your brain to process toxins, your body to restore itself and your mind to rearrange your knowledge to integrate experience and create insights into how the world works. Most of these processes are actually running independently of one another but all rely on a healthy sleep pattern of three REM stages and at least two deep sleep stages, through the intervening stages at a balanced pace.

What this all means is that your body has these natural patterns for sleep that it knows how to maintain but also trigger off of your circadian rhythms as well as your glucose cycle. The three patterns work together to keep you healthy physically, mentally and emotionally. They are also feedback systems to one another, so changing any of the three cycles impacts the other two. First we focus on getting your sleep stable so that you can reduce the total time in a way that doesn't harm the benefits of sleep. Naturally this means that you may need to alter your eating schedule, your exposure to light and physical activity as well as your attitude (all of which is covered in the sections above, so please read them carefully and take them seriously).

In order to change your sleep cycle time, you need to have a healthy sleeping schedule where you are able to wake up rested. If this isn't the case, please read the first part of this document

to get there if you can and if you cannot, please do not attempt to shorten the time you sleep. Being well rested is important because it indicates the current state of your sleep health.

Key elements for reducing your sleep cycle time:

1. Most people respond to changing their bedtime and keeping their wake up time stable
2. Do not change your wake up time more than an hour a week
3. Use natural (no high fructose corn syrup) sugar, by your bed (like Capri Sun) to help you wake up
4. Allow natural light (or a full spectrum light) to help you wake up in the morning
5. Keep your immediate wake up activities to a minimum for the first hour after you wake up
6. Do not eat until an after after you wake up
7. No exercise for the first hour after waking up
8. Get out of bed immediately after waking up
9. Reduce exposure to light (especially blue light) at least an hour before bed time
10. Have cheese, turkey or warm milk just before bed time to help you fall sleep if needed
11. Be mindful of the need for ear plugs, blindfolds, white noise, etc.
12. Use quiet reminders for bed time and alarms for waking up
13. When altering your sleep cycle, take vitamin C or drink orange juice as your immune system will be weakened until your sleep times have been successfully changed

My personal experience in sleep reduction

This is an account of what I did to reduce my sleep. This may or may not work for you and I built this system with the principals listed above, starting from a stable, longer sleep cycle that was normalized for many months. Any or all of these principals will require adjustment, experimentation, monitoring and caution. Starting from a stable sleep cycle was key for me, all of my attempts to shorten my sleep when I did not have a regular sleep cycle to begin with, failed miserably and made me less than I could be mentally, physically and psychologically.

My routine was simple, upon waking up, I would have some Capri Sun (natural sugar at the time!) fruit punch flavor (reports indicate that my research into flavors agrees with consensus, this flavor works best) which would cause two things to happen. First, Capri Sun is hard to open. The challenge of being able to properly open the Capri Sun is sufficient to require your brain to pay close attention. This helps you to wake up in and of itself. Second, the rush of natural sugar gives you the motivation and physical energy you need to get out of bed. Before finishing my drink, I'd be out of bed and typically shave/shower/dress. I would then do some meditation and intention setting to start my day. Next I would prepare some breakfast. I would have something for breakfast and include a glass of orange juice (sugar and vitamin C) to boost my short term sugar and immune system. Things would be setup for the day ahead so that I could be successful at whatever I had set as my intention. This might include turning on equipment I needed, getting out books/reference materials, turning on, laying out tools, etc. that might be required for the days productivity path, etc. After an hour of being awake, I would do some form of exercise (never much into that, so usually something light, a few push ups, jumping jacks, some Kempo Karate practice. Etc.) before beginning my tasks for the day.

Now, all people are different and I happen to be a disagreeable person with a reasonably high energy level. My day consisted of doing full speed at whatever obstacles were in my way and destroying them with sheer force of will. Since this approach to the day was always a function of my personality and ability, I don't expect anyone else to set that as a goal! Any change that makes you better, more patient, more understanding, etc. is a good change for you, even if it is subtle.

My nighttime routine was to wind down at least an hour before my bedtime. This would consist of some meditation, light reading (fiction) and some quiet time. Before getting into bed, I'd do some intention setting for the night and next day along with some contemplation about my day and the larger frame of life. This sort of system helps to keep you calm when you need calm, make space for your inner development and keeps you at a higher operating efficiency during your day.

Closing

First, thank you so much for taking the time, energy and effort to read this paper. I hope that this information is useful for you, as it has been for myself and others.