Sleep : everything you need to know

For many people, the correct answer is limited to diet and nutritional supplements. Many even overlook their training regimen. It’s time to talk about something that everyone misses! In fact, it has a much stronger effect than any supplement, superfood, or training split. When it comes to sports, and specifically bodybuilding, your sleep is king! In this article, you will learn EVERYTHING you need to know about sleep and how it can significantly improve your gym performance and training results. Why Do We Need Sleep? There are many reasons why we sleep. Science still doesn’t have a precise explanation. Several leading theories exist, with the real reason likely being a combination of all of them. Here are the more significant reasons that make us indulge in sweet sleep for about 8 hours a night: Energy Conservation – We need less energy while sleeping. Reorganization of Memories – Our memories and the information we’ve absorbed throughout the day are reorganized. Physical Recovery – While we sleep, our body renews and builds certain tissues, nerve cells, neutralizes neurotoxins, and restores biochemical processes in the body. Mental Recovery – This is also when our brain recovers. In practice, sleep is indeed a way to “recharge our batteries,” but it has many more functions. What Happens If You Don’t Get Enough Sleep? Lack of sleep is a more serious obstacle to your progress in the gym than chronic fatigue, a poor diet, or ineffective workouts! The reason is that lack of sleep makes you much more vulnerable to chronic stress and can turn a good training and dietary regimen into an ineffective one. In practice, this is the first thing you should pay attention to. It’s the foundation upon which you should build good training and dietary habits. Here’s what lack of sleep leads to: Increased Appetite If you haven’t read my article on appetite control and hunger, now is a good time to review it. I’ll quote the conclusions regarding sleep that I shared in it. Even a single episode of serious sleep deprivation (just 4 hours of sleep) is enough to increase the feeling of hunger by 24%. If you think this is an extreme case that doesn’t apply to you, I’ll disappoint you. People who sleep less than 7 hours a night experience 26% less satiety after breakfast! Chronic sleep deprivation affects the levels of the hormones leptin and ghrelin, which are responsible for hunger. But the more unpleasant news is that lack of sleep significantly affects insulin sensitivity. It’s no coincidence that people who sleep 6 hours a night or less are at a higher risk of diabetes. Slowed Metabolism One of the main functions of sleep is energy conservation. Sleep deprivation activates a number of processes in the body that slow down our metabolism. On one hand, it affects our physical activity. Even higher levels of conscious activity are entirely neutralized by much lower subconscious activity. On the other hand, sleep deprivation also leads to disturbances in body temperature regulation and affects our basal metabolic rate at rest. Decreased Testosterone Production This is important because: Chronic sleep deprivation leads to a lasting decrease in testosterone levels. There’s no need to explain what this means for your efforts in the gym. Testosterone is important not only for muscle building but also for the overall well-being of every man! It can affect our behavior, motivation, and emotions. Amidst all the dubious and ineffective nutritional supplements, quality sleep is one of the best solutions for ensuring optimal testosterone levels. Changes in Muscle Mass to Fat Ratio Any change in our body weight is a mix of muscle gain or loss and fat gain or loss. The ideal scenario would be to gain 100% muscle mass and lose 100% fat, but this is far from reality. This dynamic ratio is called nutrient partitioning. There are many factors that can affect it, but sleep is definitely the most important! One of the best studies on the subject compared 8.5 hours of sleep with 5.5 hours of sleep over a 14-day caloric deficit. The results are more than intriguing – the sleep-deprived group burned 55% less fat and 60% more muscle mass for every kilogram lost! Increased Insulin Resistance Chronic sleep deprivation is associated with higher insulin resistance. To the extent that it is considered a risk factor for type 2 diabetes! This might sound trivial, but it is actually significant. Especially in the context of the average working person who regularly doesn’t get enough sleep and eats mostly on the go. Pre-prepared foods are almost always carbohydrate bombs. Even “healthy” alternatives often contain a high amount of carbohydrates. Sleep deprivation combined with an inappropriate diet can easily lead to weight gain, and in the long term, to serious conditions like metabolic syndrome and/or diabetes. Decreased Cognitive Abilities This is probably not surprising to anyone. In fact, there’s no need to quote studies since each of us has experienced the consequences of sleep deprivation. It’s enough to miss a few hours one night to feel the unpleasant effects. In my opinion, chronic partial sleep deprivation is more dangerous. Modern life demands that we stick to a schedule. Often we have a fixed wake-up time but choose when to go to bed. Many people sacrifice sleep for more interesting activities and sleep 6-7 hours a night. Several studies show that even 7 hours of sleep a night leads to decreased concentration, productivity, and decision-making abilities. This can also reflect in the gym because: The ability to focus on weights and exercises and build a good mind-muscle connection can have long-term effects. There aren’t many studies on this topic yet, as measuring it is quite difficult, but I believe people who lift with enthusiasm and focus achieve much better results! Every workout puts our body under stress and triggers a reaction from our immune system. Muscle inflammation is an important part of the body's recovery process. Even a single night of lost sleep can suppress and weaken the immune system! On one hand, this makes us more susceptible to illness, which could set us back by several weeks. On the other hand, losing even a few hours of sleep leads to higher average levels of body inflammation. What does this mean? The more inflammation there is, the less of the training stimulus is recognizable to our body! Sleep has 5 stages, each lasting about 90 minutes. Every night, we go through several consecutive cycles of all 5 stages. Let’s summarize them briefly: Stage 1: Brain activity decreases compared to our waking state. This is the moment we drift off, lasting between 5 and 10 minutes. Stage 2: Muscles relax, body temperature drops, and pulse slows down. During this stage, our body prepares for deep sleep. Stages 3 and 4: The body enters deep sleep. This is where all recovery processes occur – repairing damaged tissues, building muscles, etc. Stage 5: REM (Rapid Eye Movement) sleep. During this phase, we dream most actively, our muscles are paralyzed, and breathing speeds up. The first REM phase lasts about 10 minutes, with each subsequent phase being longer. Have you ever slept 8-9 hours but woke up feeling tired and sluggish throughout the day? This is a good sign that you did not sleep well! Interestingly, there is still no scientific consensus on how to measure and describe quality sleep. Smart bands are a good tool that researchers increasingly use to provide an objective measure of quality. There are also questionnaires like the PSQI (Pittsburgh Sleep Quality Index), considered a gold standard, but they are based on our subjective personal assessment. Objectively, good sleep is continuous, deep, and intense. That’s why I’ll focus on ALL factors that can disrupt the quality of your sleep. Every living being has circadian rhythms. This applies even to the bacteria living in our stomach! The circadian rhythm is a 24-hour cycle that marks certain biological activities. The cycle that determines whether we are awake or asleep is a prime example! It is largely regulated by light, but not only. Our digestive system, body temperature, secretion of certain hormones, even the activity of the central nervous system – every biological process and system has its own circadian rhythm. Of course, this doesn’t happen on its own. The Suprachiasmatic Nucleus (SCN) is our biological clock. It is the part of our brain responsible for hourly regulation of all major systems in our body. Simply put: Our body creates conditions for certain activities according to our internal clock. Additionally, it likes routine. Like Pavlov's dog, if you eat at a specific time every day, you'll become accustomed to feeling hungry during that period of the day. To achieve this, the body creates an appropriate environment for digestion. The sum of all these detailed processes is called the biorhythm. When you deviate from your routine and disrupt your biorhythm, your body does not function optimally. As a result: Metabolism slows down, cortisol production increases, recovery from workouts takes longer, etc. The Two Processes Governing Sleep In 1982, Dr. Alexander Borbely made one of the biggest breakthroughs on this topic. In his publication that same year, he developed a theoretical model describing how sleep is regulated by light within a 24-hour window. This is where the two-process model of sleep originated. Every morning, as soon as we open our eyes, the first process called "sleep pressure" (Process C) is activated. This pressure gradually increases throughout the day, being lowest in the morning and highest in the evening. Before bedtime, the accumulated pressure helps us fall asleep. While we sleep, the pressure decreases, and by the next morning, it is at its lowest, and the process starts anew. The second process in this model is associated with the feeling of alertness (Process S). Similar to sleep pressure, the feeling of alertness rises from morning to evening. This process counteracts the accumulating sleep pressure and helps us stay alert throughout the day. In the morning, the feeling of alertness is lowest because it is not needed, as sleep pressure is at its lowest at that time. The difference is that while sleep pressure gradually increases throughout the evening, the feeling of alertness drops sharply right before we fall asleep. The dynamic interaction between sleep pressure and alertness is another reason, independent of daylight, to go to bed and wake up at the same times every day. Consistency is Everything. The human body regulates circadian rhythms exceptionally well, thanks to so-called "zeitgebers" – periodic signals from the environment. Here are a few examples: Daily light cycles. Sunrise has a predominantly blue light with a stimulating effect. Sunset has softer light that stimulates melatonin production. Social interactions. Especially concerning socially accepted norms for breakfast, lunch, and dinner. Air temperature can also be an effective zeitgeber. Typically, it is colder in the morning and evening, and warmer during the day. This applies to our body temperature as well. But let’s focus on sleep. The time you go to bed is an effective zeitgeber. Your body adapts and starts producing melatonin during this period. If you go to bed at different times each night, you will hinder your body’s ability to adapt. Additionally, there is evidence that sleeping during a different time window from what you're used to makes the sleep itself less effective! (for example, sleeping from 24:00 to 08:00 instead of from 22:00 to 06:00). Of course, this does not mean you have to go to bed at 10:00 PM even on weekends. Especially if you optimize all other factors and maintain good sleep hygiene! The Effect of Light on Sleep And specifically, blue light. This is light from a specific spectrum and wavelength that signals to the body that it's time to wake up. As you might guess, in nature, this light is noticeable during the day and is strongest in the morning at sunrise. If you’ve wondered why it feels so good to wake up to natural light, now you know the reason! The problem is that nowadays, there are many sources of artificial light! Lamps, TVs, phones, and tablets – practically all electronic devices emit blue light. That’s why it’s a bad idea to fall asleep with a movie on. The intensity and duration of light determine to what extent melatonin secretion will be suppressed. On the other hand, exposure to blue light during the day has a positive effect on the quality and duration of our sleep. How to Handle Electronic Devices? If you can’t avoid electronic devices before bed, you can use apps that reduce blue light. F.lux is an application that simulates sunrise and sunset by controlling the brightness of the screen and the type of light it emits. Alternatively, you can use the Bulgarian app Iris. Personally, I have recently started using Iris on all my devices and I am more than satisfied! After waking up, try to spend more time in natural light. This will help your body recognize the day and prepare you for sleep later. Before bedtime, reduce all sources of artificial light. This is also a good excuse to rediscover candles! Limit and Optimize Caffeine Consumption Caffeine is a powerful stimulant of the nervous system. As such, it makes falling asleep difficult and disrupts sleep quality. That’s why you should avoid it late in the day. Many people think they don’t have a problem with coffee because they drink espresso after dinner and fall asleep without issues. This alone doesn’t mean much. It is crucial to sleep deeply and for a long time. Even if it doesn’t prevent you from falling asleep, caffeine leads to restless sleep. Contrary to popular belief, caffeine is found in many things besides coffee. It is present in tea, dark chocolate, energy drinks, cola, and more. Unfortunately, caffeine is a substance to which the human body builds tolerance. This means we have a constant need for higher doses of caffeine to feel its effects. Tolerance typically builds up after 100 mg of caffeine per day, though this value varies between individuals. How Much Caffeine Should We Consume? For 80% of people, it is perfectly acceptable to drink between 1 and 3 coffees a day in the early hours of the day. Avoid caffeine consumption after 2-3 PM, unless it is green tea. Green tea contains certain amino acids that neutralize the effects of caffeine and have a calming effect. However, don’t drink more than one green tea, as the accumulated caffeine will interfere with your sleep. If you want to learn your sensitivity to caffeine, you need to stop caffeine for a period of 1 or more weeks. This will allow you to regain your sensitivity to it. Then, on a day of your choosing, drink a coffee in the late afternoon. Repeat for a few days, keeping a diary where you record the duration of your sleep, its quality, as well as your levels of fatigue, restfulness, and alertness throughout the day. If everything goes well, try with two coffees and repeat the experiment. This way, you will determine how much caffeine you can tolerate without adverse effects. As an avid coffee fan, I have found that up to 2 espressos a day, and rarely 3, do not affect my sleep if consumed early in the morning, before my workout. On a non-training day, two or more cups of coffee significantly disrupt the quality of my sleep. Alcohol and Nicotine Contrary to many people's beliefs, alcohol has a negative effect on our sleep! It is true that it helps us fall asleep more easily and deeply. But the catch is that alcohol consumption leads to significantly disrupted REM sleep! Furthermore, there is evidence that alcohol suppresses melatonin production. Often, we consume alcohol along with other drinks and mixers. What many overlook is that alcohol is a diuretic. Anyone who has had the misfortune of drinking several beers before bed knows that they need to wake up at least once during the night to visit the bathroom. And when we are drunk: We have shorter sleep compared to sleeping sober; We spend less time in REM sleep; We sleep more during the first part of the night; But wake up more frequently throughout the night. **That's not all!** For some people, alcohol can lead to excessive relaxation of the muscles around the airways. As a result, breathing during sleep can cause or worsen sleep apnea in those who suffer from this condition. Nicotine has a similar effect to alcohol. Regular smokers are particularly prone to developing obstructive sleep apnea. Additionally, smokers tend to wake up more often and spend less time in deep sleep. The key is moderation! Alcohol and cigarettes are an integral part of modern life. You don’t need to eliminate them from your daily routine. It’s enough to use them wisely and in moderation.

Several good practices that can ensure good sleep.

You can certainly avoid smoking in the last few hours before bedtime. But things are not the same with alcohol. It is much more pressing in certain social situations. In practice, many families have wine, beer, brandy, vodka, etc., during dinner. This is part of a special ritual that does not necessarily need to be eliminated. If you have sleep issues or want to improve its quality, leave at least two hours between your last drink and bedtime. In fact, limit alcohol to one glass of wine, one small beer, or a small glass of hard liquor. In general, many experts would recommend drinking plenty of water with alcohol, as it is a diuretic. My advice is quite different—if you have had enough water during the day, you can limit it in the hours before bedtime, especially if combined with alcohol. This will reduce midnight trips to the bathroom. **Prepare the Ideal Sleep Environment** Even if we follow all the advice above, sometimes it can still be hard to fall asleep. There are a few more things to consider. The environment—conditions in which we sleep—has a significant effect on the quality and duration of our sleep. Here are the three most significant factors: **Light:** To fall asleep better, your room should be as dark as possible. If you have a choice, use the thickest curtains or blinds available. Remove any glowing electronic devices. Turn your phone face down to prevent its light from disturbing you if someone calls you during the night. If necessary, buy a sleep mask. Even the simplest one will work perfectly and serve you well for years! **Noise:** Noise pollution is one of the most serious problems of modern society. Numerous studies show that sleeping in a noisy environment leads to poorer sleep quality and can cause long-term health issues. Unfortunately, we rarely have control over noise caused by the environment. We cannot move the boulevard or change our neighbors. Even if you replace your windows with the most modern soundproof ones, you won’t get rid of the noise that sneaks through the walls. My advice is: Buy earplugs from the nearest pharmacy and keep them by your bed in case the night is noisier than usual. Another alternative is to get a device that produces white noise. Old fans work excellently. **Temperature:** You can’t help but notice the effect of heat on your sleep. Personally, I find it extremely difficult to sleep on the hottest summer days. If you sleep in a room that is too hot, you can expect frequent awakenings and poor sleep. But this doesn’t only apply to the air temperature. The same rule applies to our body temperature. Do you remember the first two phases of sleep when there is a drop in body temperature? If you’re too warm, you will extend this period and find it harder to reach deep sleep. The ideal sleep temperature is around 20 degrees Celsius. **Room Tidiness:** I admit that this was a surprise to me as well, but the condition of your room can affect the quality of your sleep. Cluttered rooms—with many unfolded clothes, disorganized books, etc.—can disturb your midnight rest. **Eliminate Excess Stress** Some studies show that the amount of stress we are under is a good indicator of our sleep quality. On the other hand, poor sleep and sleep deprivation make us more vulnerable to stress. This leads to a vicious cycle. Inadequate and poor-quality sleep makes us more susceptible to stress, and stress, in turn, prevents us from sleeping deeply and for long periods. In the long term, this can lead to insomnia and burnout. The solution to this problem is extremely complex. There are hundreds of books on the topic, and it’s impossible to condense all the information into a few lines. However, there are techniques that work for most people. **Develop an Effective Routine** Once again, we return to routine. But this time, the context is different. Preparedness eliminates the need to think. Most people make about 200 food-related decisions every day. Constantly thinking about food—what, where, and when to eat—is one of the biggest stressors for most people on a diet. Therefore, the best diet is one that doesn’t require much thought. In fact, this is one of the main advantages of meal plans over flexible diets. But the diet is just one example. This applies to most things in our daily lives. It might sound obsessive, but I prepare my work clothes several days in advance. Many of my colleagues iron all their shirts for the work week every Saturday/Sunday. The examples are endless, but the lesson is clear—minimize trivial decisions! **Meditate More Often** One of the things gaining incredible momentum is meditation. More and more people are meditating, and there’s a reason for that. The benefits of regular meditation are endless, some of the most important include: Reduced pulse, blood pressure, and cortisol; Fewer inflammations and strengthened immune system; Improved memory, emotional control, and concentration; Even development of gray matter and formation of new nerve endings; and of course Better sleep. Even if there were no proven effects, meditation is so relaxing, pleasant, and low-maintenance that there’s no reason not to give it a try! It’s enough to lie down in a quiet place for 5 minutes and focus 100% on your breathing. Try to clear your mind of any distracting thoughts, breathe slowly and calmly through your diaphragm, and relax. It’s always difficult at first, but like anything else, it becomes easier over time. Personally, I meditate during stressful periods as soon as I get home from work and right before bed. **Create a Bedtime Ritual** I haven’t come across any scientific studies on this topic, but many people recommend this technique. It’s again about circadian rhythms and routine. Our bodies love consistency, and perhaps that’s why this technique works. Here’s a good example that one of my clients created for herself: All lights and electronic devices are turned off 45 minutes before bed. The lighting is as soft and dim as possible. Within 5-10 minutes, all clothes are folded and put away, and the room is tidied up if necessary. Follow with brushing teeth + 5-10 minutes of meditation. 20-30 minutes of reading a book. This naturally developed over a few weeks after we worked on the schedule, routine, daily stress, etc. Of course, this is just one of millions of examples. The important thing is that what you do before bed should relax you and prepare you for deep sleep. There are many things you can build a ritual around. Here are a few ideas: **Massage:** With a foam roller, anyone can massage themselves before bed. This will relax tight muscles and better prepare you for sleep. If someone is available to massage you, don’t miss this opportunity. **Sex:** I’m sure I don’t need to justify this. Few things are more relaxing and pleasant. And yet, sex has hundreds of benefits, one of which is better sleep! **Brain Dump:** Many people have difficulty falling asleep because their minds are racing with thousands of thoughts. Usually, it’s about what happened during the day or all the tasks awaiting them the next day. This is a sign of stress that can be eliminated through the brain dump technique. The idea is to transfer all thoughts onto paper. There’s no need to write in a structured or sequential manner. What’s important is to get every thought out of your head. **Exercise Regularly, but Not Before Bed** Exercise is one of the most effective ways to deal with poor sleep! We’ve discussed the benefits of weight training several times, and I assume most of our readers exercise very actively. Therefore, I will present the most relevant information quickly, along with a few side notes. Exercise has a positive effect on the time it takes to fall asleep, the quality, and the duration of sleep in patients suffering from insomnia! However, it’s important to note that workouts can negatively affect your sleep if you exercise late in the evening. When we exercise, we stimulate our nervous system and release certain hormones that keep us awake. This effect is observed in some people but not everyone! If you have the luxury of choosing when to exercise, schedule your workouts between 2 and 6 p.m. or 6-8 hours after waking up if you wake up later in the day. **Supplements for Better Sleep** Everyone knows someone who can sleep anywhere, anytime, and in any position. These people rarely follow the advice in this article but still sleep like a baby every night. On the other end are people like me who have always had trouble sleeping. Even though I apply the techniques above, sometimes, I need a little extra help. When I’m particularly stressed, I use supplements to improve my sleep. They are quite effective for most people, and many are completely safe! **The first and most common supplement is melatonin.** Melatonin is a hormone that regulates our sleep-wake cycles. Melatonin supplements can help those with irregular sleep patterns, insomnia, or difficulties falling asleep. Most people take it in doses ranging from 0.5 to 5 mg before bedtime. However, keep in mind that higher doses don’t necessarily increase effectiveness and might have side effects. **The second supplement is magnesium.** This mineral plays a role in many bodily functions, including muscle relaxation and calming the nervous system. Many people take magnesium supplements (200-400 mg) before bed, often in the form of magnesium citrate or glycinate. **The third supplement is valerian root.** This herbal supplement has been used for centuries to treat sleep disorders and anxiety. Valerian root extract is available in various forms, including capsules and teas. **The fourth supplement is L-theanine.** L-theanine is an amino acid found in green tea. It promotes relaxation and helps reduce anxiety without causing drowsiness. Most people take it in doses of 100-200 mg before bed. **The fifth supplement is CBD oil.** Cannabidiol (CBD) is derived from cannabis plants and has been found to help with sleep and anxiety. Make sure to choose high-quality, third-party tested products if you decide to use CBD oil. Before starting any new supplement regimen, it’s always a good idea to consult with a healthcare professional, especially if you have underlying health conditions or are taking other medications. **A Final Note** Sleep is one of the most vital aspects of our health and well-being. It affects our physical health, emotional state, cognitive function, and overall quality of life. Implementing the strategies discussed above may help you achieve better sleep and improve your overall well-being. Take the time to evaluate and adjust your sleep habits, environment, and daily routines. Every step you take towards better sleep can lead to a healthier and happier you. Source: Aesthetic By Science.

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