

# The Importance of Sleep

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The curriculum at CCA often consists of simultaneously completing multiple projects from various classes. There can be difficulties with maintaining a consistent and beneficial sleep-schedule due to deadlines and bursts of inspiration or energy can develop late into the night and take precedence over sleep, which impacts creative sustainability. Nonetheless, research has shown us repeatedly that sleep hygiene is linked to short and long-term cognitive impairments that can affect your ability to be fully alert while learning new material or creating projects. Do you answer yes to any of the following questions?



## Questionnaire:

1. Do you often pull all-nighters to finish a project?
  2. Have you ever felt so engrossed in a project that you put aside your usual bedtime to finish the project?
  3. Do you find yourself replacing 7-8 hours of nightly sleep for periodic naps?
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4. Do you use substances, such as, marijuana or alcohol to make you fall asleep quicker?
  5. Do you rely on substances like Melatonin to make you fall asleep?
  6. Do you feel drowsy throughout the day and look forward to a midday nap to refresh?

The most essential factor that contributes to your daily health and wellness is the amount of sleep you receive nightly. However, sleep is one of the first aspects that we deprive ourselves from when we feel overwhelmed with the added responsibilities of being a college student. Research has shown the significant benefits of prioritizing sleep. Below are some key takeaways from the Joe Rogan Podcast featuring Dr. Matthew Walker, who is the Professor of Neuroscience and Psychology at the University of California, Berkeley, and Founder and Director of the Center for Human Sleep Science. The full podcast episode and bullet points will be referenced below. The information provided in this article is intended for your general knowledge only and is not a substitute for professional medical advice or treatment for specific medical conditions. You should not use this information to diagnose or treat a health problem or disease without consulting with a qualified healthcare provider.

## Stages of Sleep

**ALL stages of sleep are important.**

- ❑ “Mother nature wouldn’t waste time putting you into a state that wasn’t necessary”

**What happens during REM sleep?**

- ❑ Our cardiovascular system goes through periods of dramatic acceleration and then dramatic deceleration.

**Our brain paralyzes our body so our mind can dream safely.**

- ❑ So we don’t dream we can fly, and then attempt to do this.

**Our brain replays memory sequences we learn while awake, but ~20x faster than when you’re awake.**

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- ❑ **“Practice doesn’t make perfect. Practice with a night of sleep makes perfect.”**
  - ❑ You come back the next day and you’re 20-30% better at your skilled performance, compared to the end of your practice session the day before.
  - ❑ **“Sleep is the greatest legal performance enhancing drug that most people are probably neglecting.”**

**During dream sleep, we take old information, and combine it with new information we’ve learned, and form new connections/associations.**

- ❑ **For this reason, we might often find new solutions to previously unsolvable problems after a good sleep.**
- ❑ Thomas Edison used sleep as a vital tool for creativity.

## **Sleep and Drugs**

**Cannabis is very good at blocking REM (dream sleep) – alcohol also blocks REM sleep.**

- ❑ **The brain is very clever, and builds up a clock count of how much “dream sleep” you should have had, but have not been getting.**
- ❑ The brain develops such an appetite for dream sleep, that you’ll get a REM sleep rebound effect if you stop smoking for a period of time.
  - ❑ **This is where you have really intense dreams**
- ❑ Marijuana puts people to sleep quicker, but it's debatable whether it's naturalistic sleep.
- ❑ When a person with problems with alcohol abuse stops drinking alcohol, they’ll often develop delirium tremens.
  - ❑ The alcohol has been blocking REM sleep so long, and the pressure for deep sleep has built up so much, it has spilled over into wakefulness. You essentially dream while you’re awake.

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## What should a person do if they have a hard time falling or staying asleep?

Regularity is most important – go to bed, and wake up at the same time every day.

- ❑ The last hour of the day, stay away from any screens.
  - ❑ **Turn off most of the lights in your house at night 2-3 hours before bed**
- ❑ Keep your room cool
  - ❑ **Your brain needs to drop its temperature 2-3 °F in order to sleep.**
  - ❑ Warm your hands and your feet to move the blood away from your core out to the surface.
    - ❑ **Matthew recommends either going to sleep with socks and gloves on, or taking a warm bath right before bed.**
    - ❑ With a warm bath, you get vasodilation (rosy cheeks, red skin) and all of the blood rushes to the surface – **when you get out, you have a massive dump of heat from the body, and the core body temperature plummets.**

### Sleep and Diet

- ❑ **“Don’t go to bed too full, and don’t go to bed too hungry”**
- ❑ Diets high in sugar and low in fiber tend not to be good for sleep – results in less deep sleep and your sleep ends up being more fragmented.
- ❑ Please consult with your doctor

### Supplements

- ❑ **Melatonin** is useful when traveling between time zones – it fools your brain into thinking it’s time to go to bed.
  - ❑ Once you’re stable in a new time zone, melatonin doesn’t seem to be advantageous towards sleep – it’s much more of a placebo effect.

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## Light and Sleep

- ❑ “We are a dark deprived society in this modern era” – this lack of darkness is destroying our quality of sleep.
- ❑ **Incandescent light bulbs suppress melatonin**
  - ❑ **Screen usage on top, suppresses it even further**
    - ❑ One hour of Iphone use will delay the onset of melatonin production by about 3 hours.
      - ❑ Your peak melatonin levels will also be 50% less.
    - ❑ **All of this adds up to less REM sleep.**

## Naps

- ❑ We can't use naps to regain sleep we've lost.
- ❑ **“Sleep is not like a bank. We can't accumulate a debt and hope to pay it off on the weekend”**
  - ❑ Dr. Walker estimates that if you pull an all nighter, and then are allowed to sleep as long as you want the next night, you'll sleep longer but you'll only get back 3-4 hours of that lost total 8
    - ❑ **Why can't we do this?** – Humans beings are the only species that deprive themselves of sleep for no apparent reason. Mother nature has never faced the challenge of coming up with a safety net for lack of sleep.

## The Negative Effects Caused by a Lack of Sleep

### Lack of sleep and physical performance

- ❑ **If you're getting 6 hours of sleep or less, your time to physical exhaustion drops by up to 30%.**
- ❑ **The less sleep you have the lower your peak muscular strength, lower your vertical jump height, and lower your peak running speed.**
- ❑ **A higher injury risk**

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- ❑ One study showed a 60% increase in probability of injury comparing people who get 9 hours of sleep a night, to those who get 5.
  - ❑ Your stability muscles fail earlier when not getting enough sleep

**We need 7-9 hours a night.**

- ❑ **Once you get below 7, we can measure impairments in the brain**
- ❑ **There is a small fraction of <1% of the population that has a certain gene that allows them to survive on 5 hours of sleep.**
  - ❑ You are more likely to be struck by lightning than have this gene.
  - ❑ The gene promotes wakefulness chemistry in the brain.
- ❑ The shorter your sleep on average, the shorter your life.
- ❑ Wakefulness, compared to sleep, is low level brain damage. Sleep offers a repair mechanism for this.

**During deep sleep at night, there is a sewage system in the brain that cleanses the brain of all the metabolic toxins that have accumulated throughout the day.**

- ❑ One of those toxins is beta amyloid – which is responsible for the underlying mechanism of Alzheimer’s disease.
- ❑ The less you sleep – the more this plaque builds up.
- ❑ **Insufficient sleeps is the most significant lifestyle factor for**

**The average American adult is sleeping 6 hours and 31 minutes during the week (it used to be 7.9 hours in 1942).**

- ❑ o “The number of people who can survive on 6 hours of sleep or less, rounded to a whole number, and expressed as a percentage of the population is 0”

**Under-slept people will take on fewer work challenges, are more likely to slack off in groups, and are less likely to come up with creative solutions.**

- ❑ Less sleep does not equal more productivity.

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- ❑ With 14 days straight of 6 hours sleep or less, your cognitive performance nosedives, and with no sign of leveling off.
  - ❑ After 20 hours of being awake, you are as physically and cognitively impaired as you would be if you were legally drunk.

## **To Sum Up**

As you continue to manage your daily responsibilities as a student, it is crucial to make gaining sufficient sleep a priority. Research has shown short and long-term effects related to lack of sleep that should be taken into consideration. Please consult your healthcare provider with any questions or concerns you may have related to your sleep.

## **References**

You can find the full episode featuring Dr. Matthew Walker on “The Joe Rogan Experience” episode 1109. The above bullet points were referenced from:

<https://podcastnotes.org/joe-rogan-experience/why-we-sleep/>