



Prize Winner

Multimedia

Year 9-10

Isabel Keelan

**Walford Anglican School for
Girls**





The Imporatnce of

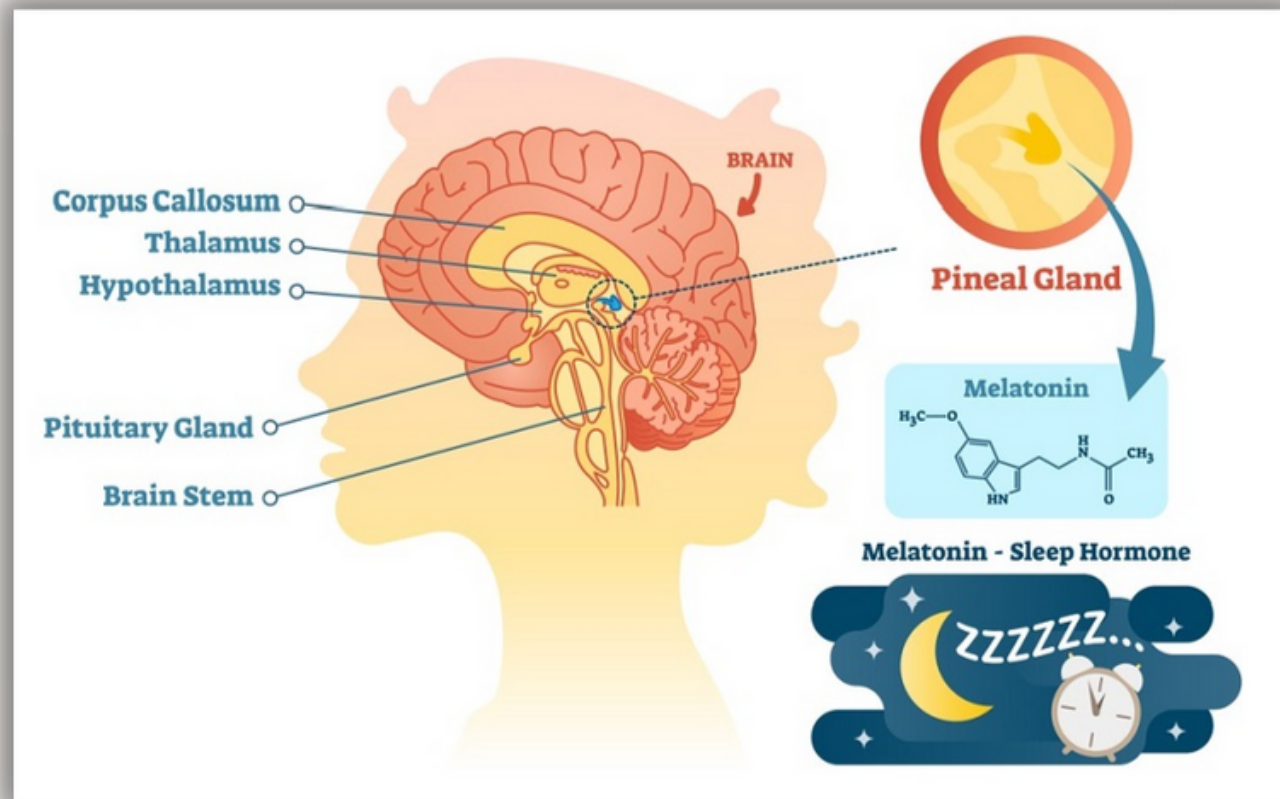
→ **Sleep**

BY ISSY KEELAN

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Sleep

BRIEF INTRODUCTION

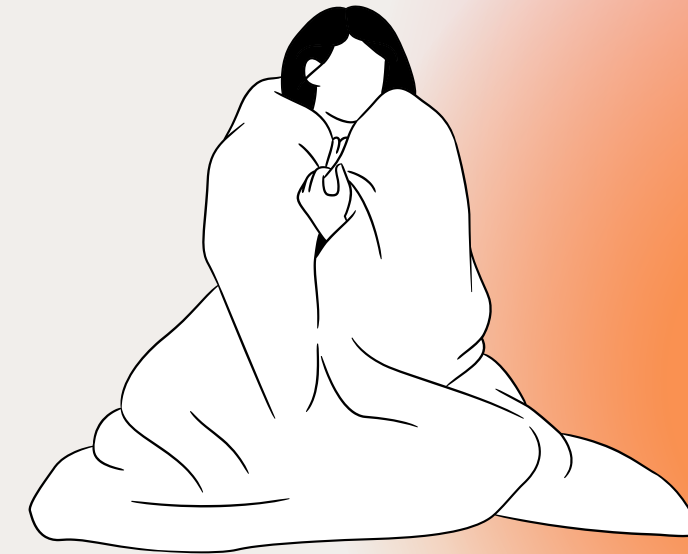


Sleep is the time when your body and brain repairs itself from the day and prepares itself for the day to come. When night falls your pineal gland begins to release more melatonin* causing your body to feel drowsy and tired. While you sleep, your body repairs cells, your nervous system relaxes and your cortisol** levels lower.

*Melatonin is the hormone that assists your circadian rhythms (internal clock). It responds to darkness and causes you to feel tired. Exposure to lights at night can prevent your body from creating the melatonin.

**Cortisol is the main stress hormone.

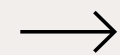
How important is sleep?



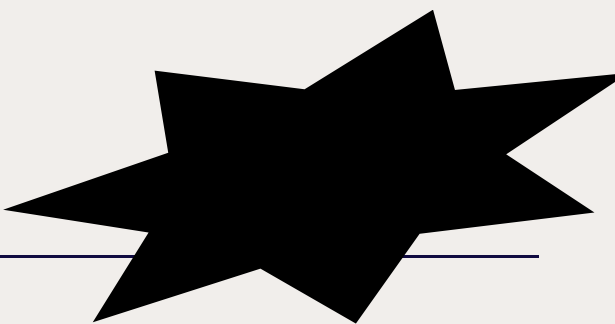
The majority of people think of sleep as a time for relaxation and they know they feel great and refreshed after a good night's sleep and feel awful after not getting enough. However, many people do not realise that sleep plays a huge role in their mental wellbeing, learning and focusing abilities. Not getting the recommended hours of sleep can not only hamper your bodies behaviour but will also heavily affect your day-to-day life. The effects of fatigue during the day include; forgetfulness, mood swings and a slower reaction time. A study from the AAA Foundation for Traffic Safety states that drivers who have slept for 4-5 hours daily had 5.4 times the crash rate, all because they did not sleep enough the night before!

Recommended hours of sleep for different age groups:

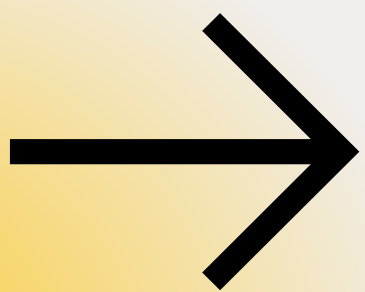
- ☀ Newborn 0-3 months old: 14-17 hours
- Infant 4-11 months old: 12-15 hours
- Toddler 1-2 years old: 11-14 hours
- Preschool 3-5 years old: 10-13 hours
- School-age 6-13 years old: 9-11 hours
- Teen 14-17 years old: 8-10 hours
- Young Adult 18-25 years old: 7-9 hours
- Adult 26-64 years old: 7-9 hours
- Older Adult 65 or more years old: 7-8 hours



([Sleepfoundation.org](https://www.sleepfoundation.org), March 10, 2021)



How lack of sleep can affect your daily life



Energy:

Lack of sleep at night can leave you feeling drowsy and exhausted the next day. During sleep, glycogen levels are re-established.

"Glycogen is involved in storing energy in the brain, and have been shown to decrease during wakefulness" (Pacheco, 2020). This explains why you have less energy during the day following poor sleep.

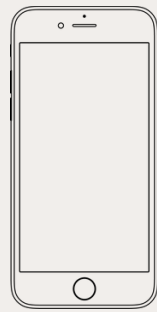
Memory:

During the period of sleeping, your brain repeats the memories accumulated during the day. Lack of sleep can "lower your learning abilities by as much as 40%" (Pacheco, 2020). Not getting your recommended hours of sleep can leave you being more forgetful than normal.

Concentration:

Following poor sleep, you may not be able to pick up and understand information as easily. Sleep-deprived teens are more likely to lose focus and concentration that is crucial to performing well in school.

Ways to improve your sleep:



screens

Limit time spent on screens like phones, iPads and laptops before you sleep. Have at least half an hour of relaxing and calming your body. Phones produce blue light which tricks your body into thinking it is daytime.



coffee

Limiting the amount of coffee you drink to just the morning will allow your body to relax during the night. "...caffeine stimulates your nervous system and may stop your body from naturally relaxing at night." (Mawer, 2020). If you crave a coffee during the afternoon, grab a decaffeinated coffee instead.



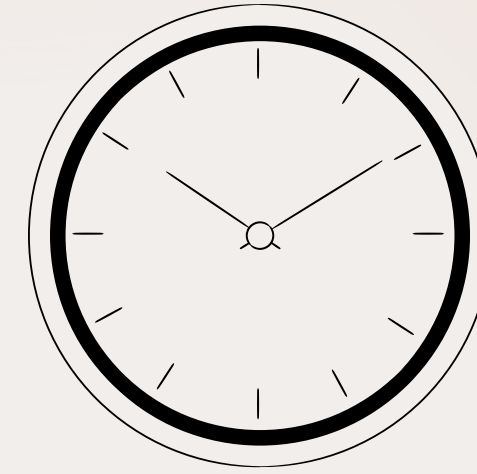
sleep pattern

Create a consistent sleep pattern that works for you and your body. Go to sleep and wake up at similar time and eventually, you may not need an alarm! Finding a sleep pattern and following it can optimise your sleep and leave you feeling fresh and awake in the morning.



Person of Focus:

Peter Tripp



Peter Tripp was an average middle-aged man working as a New York radio DJ. In January 1959, Tripp decided to attempt a 'wakeathon'. For most of the experiment Tripp was located in a glass booth in Times Square, New York. Many professionals (scientists, psychologists and doctors) supervised and monitored Peter's health during the wakeathon. Tripp managed to stay awake for 201-hours, creating (at the time) a new world record. Two days after beginning the experiment Tripp experienced many mood swings and outbreaks of anger towards people. After days of not sleeping had past, Tripp began to lose his normally funny and cheerful personality and started to hallucinate.



Person of Focus:

Peter Tripp

Psychologists watched Tripp closely during his hallucinations. Tripp claimed during the walkathon that there was a huge spider on his shoe, and cobwebs on people's faces. Psychologists spent ages trying to figure out what must have been happening to Tripp. They eventually came to the realisation that his hallucinations were coming in patterns. Each 90 minutes Tripp would begin seeing 'imaginary' things all around him. The doctors and psychologists established that what was happening to Tripp were Waking Dreams*. By the end of the experiment, Tripp could not define the difference between hallucinations and reality and he "essentially lost his mind" (Shellin, 2017).

*A cycle that mimics the timing of rapid eye movement (REM) sleep. When we enter REM sleep, our brains become very active as it synthesizes and interprets different signals, and it is during this stage that we dream. (N/A, 2017)

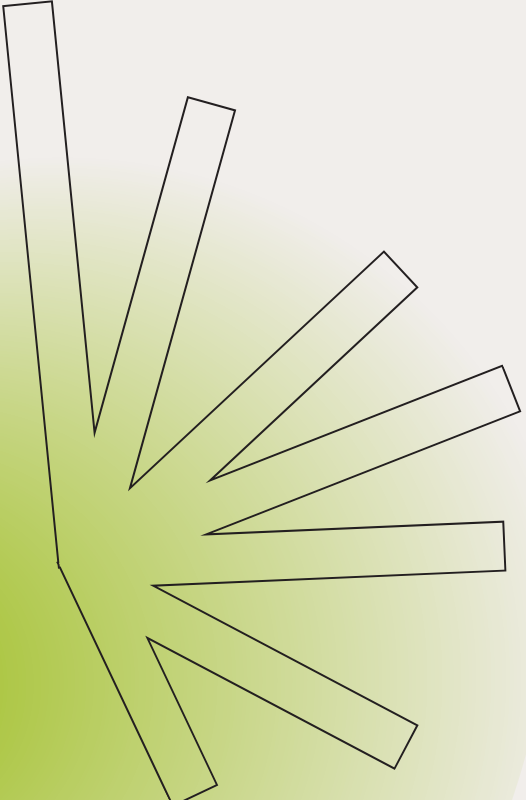
Why Is Sleep Important For Teens?

Sleep is important for everybody but it is especially crucial for teens. At this age (12-17) their bodies are constantly growing/changing and they need the rest and sleep for this to happen.

Effect of lack of sleep on teens:



- Decrease academic grades
- Create an inability to focus
- Higher risk of suffering from anxiety
- Higher risk at suffering from depression
- Higher chances of suicide
- Create bad sleep routines

A stylized graphic consisting of several rectangular bars of varying lengths radiating from a central point, resembling a sunburst or a fan.

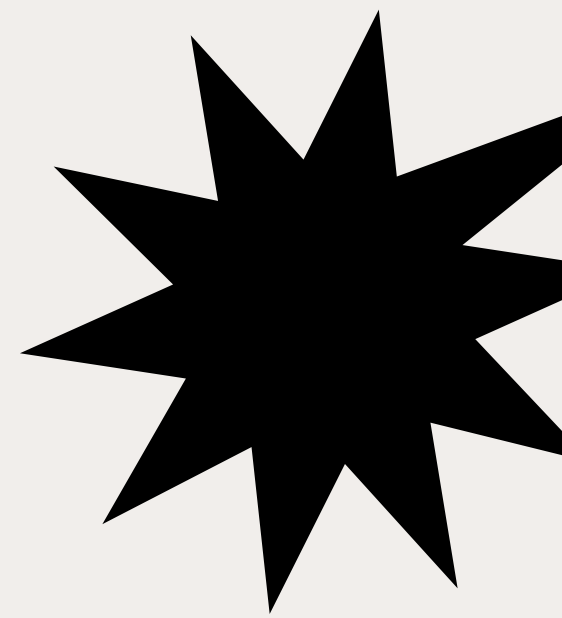
A South Korean study on students' sleep showed that students who involve themselves in school (7/8 AM-4 PM) and then after school activities and/or extra-academic classes can end their days as late as 12 AM. This means that South Korean students sleep, on average, 4.9 hours a night in contrast to the recommended 8-10 hours. It also revealed that South Korean students have an extremely high suicide rate (10.7 per 100,000 a year).

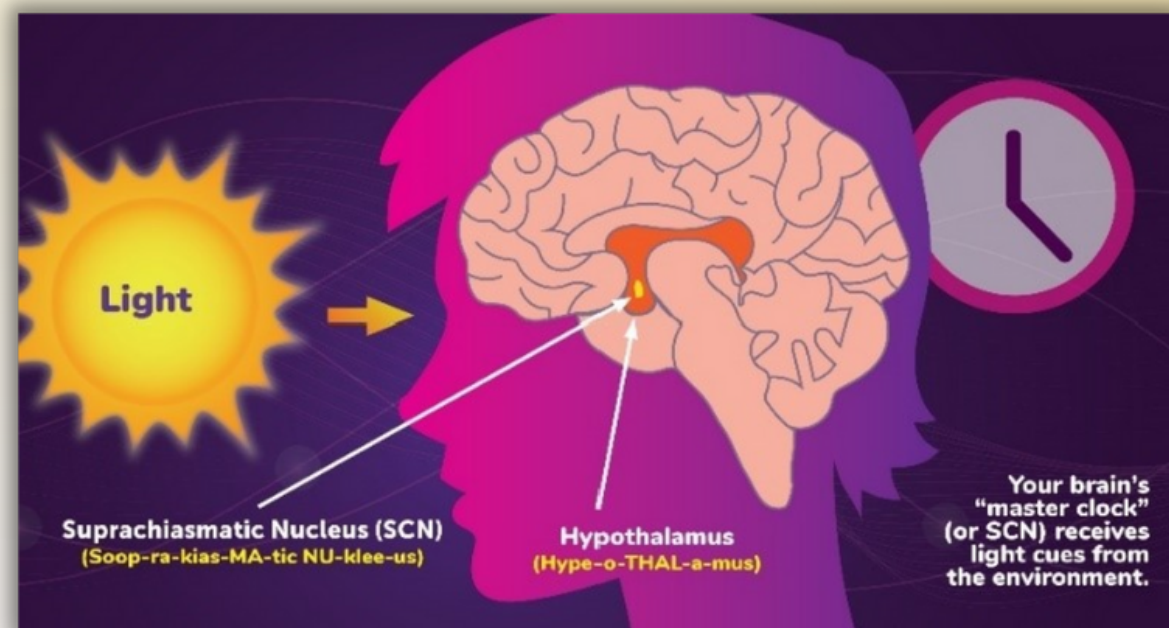
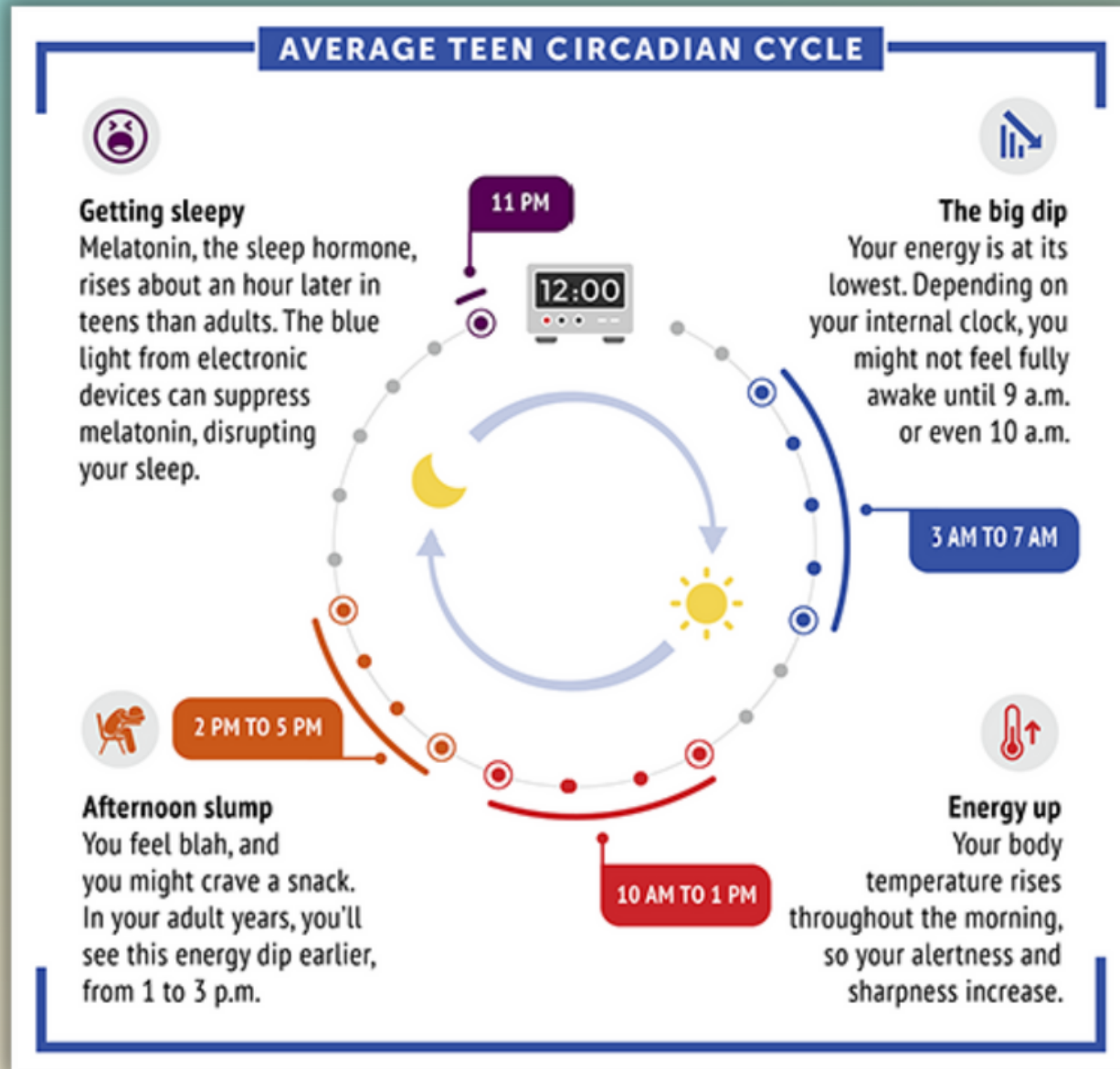
Do we all need to sleep?

All humans sleep, it is crucial to gain energy and maintain a healthy lifestyle and we do it daily, but have you ever wondered how animals sleep?

Mammals all sleep in different amounts and in various different ways that are influenced by "age, body size, environment, diet, and the safety of its sleep site" (Foley, 2021). The way in which mammals sleep is often classified as either monophasic or polyphasic, an example of monophasic sleepers are humans. This means that our circadian rhythms (see next slide) tell us to sleep for periods at night and be awake and active in the morning. In comparison to monophasic sleepers, polyphasic sleepers are organisms that sleep numerous times through the 24-hours of a day. Polyphasic sleepers are often mammals like a giraffe that need to stay alert and protect themselves from predators. However, polyphasic sleepers can switch to monophasic sleeping patterns if the danger decreases.

Dolphins are an example of a mammal that sleeps unihemispherically. During unihemispheric sleep, one side of the brain sleeps while the other is awake and working. This provides the animals with the benefits of "sleep, breathing, thermoregulation, and vigilance" (Mascetti, 2021).

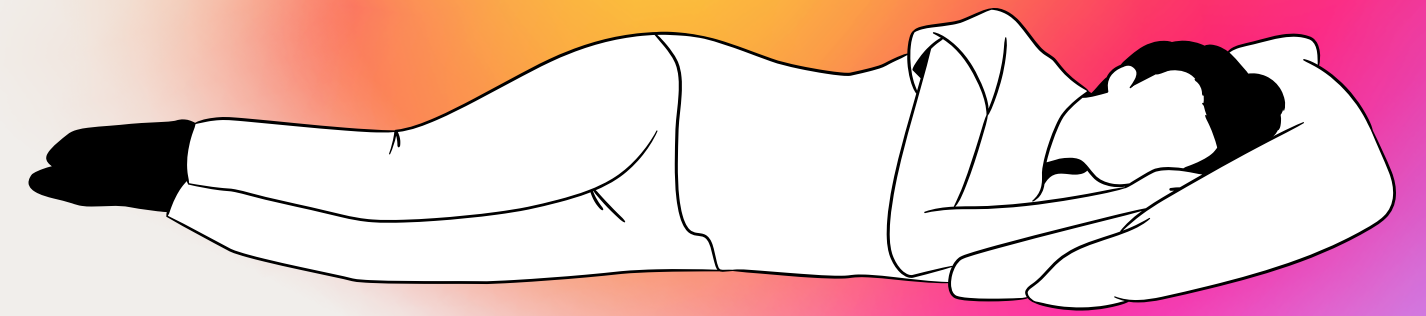




Fraze Circadian Rhythm: (Internal clock)

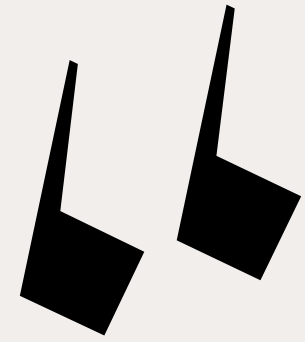
The circadian Rhythm is a system in our bodies that is responsible for many daily actions including controlling your sleep cycle and glucose metabolism*. The circadian rhythm follows a 24-hour cycle that responds to environmental cues such as light. This is why circadian rhythms are parallel to the cycle of day and night. your body has a master clock (located in the brain) that keeps all biological clocks in time. the master clock consists of "20,000 nerve cells (neurons) that form a structure called the suprachiasmatic nucleus, or SCN" (N/A, 2021). The SCN controls your melatonin levels, the optic nerves in your eye, lets the SCN know that there is incoming light which then adjusts the melatonin levels. for example, at night the amount of light lowers so the optic nerve lets the brain know and the brain increases the amount of melatonin to make you feel tired and sleepy.

*also known as Gluconeogenesis is a fundamental biochemical process that ensures a constant supply of energy to living cells.

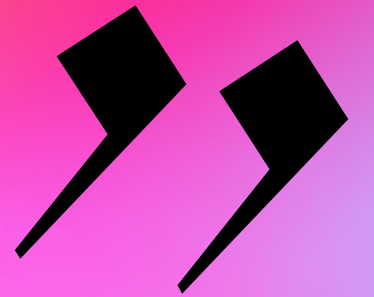


Summary:

Sleep is a necessity to gain energy and maintain a healthy lifestyle. Sleep plays a huge role in the mental wellbeing, learning and focusing abilities of your body. Getting the recommended hours of sleep can not only improve your bodies behaviour but will also positively affect your day-to-day life.



**Happiness consists of getting
enough sleep. Just that, nothing
more.**



Robert A. Heinlein, *Starship Troopers*

The Importance of Sleep:

(Written report)

Isabel Keelan

The topic that I chose to research for my Oliphant Project was Sleep and its importance. I found it challenging to pick just one topic to research because there are so many different things that I could have investigated but, in the end, I chose a topic that I wanted to know more about and a topic that I found important and interesting.

To present my research and topic I used the PowerPoint, using PowerPoint made it easier for me to explain different sub-topics and go into detail about certain things like, the amount of sleep each age group needs, things that affect your sleep and the effects of lack of sleep. At first, I found it challenging to find websites and sources that provide information about some of the sub-headings I wanted to research. I eventually found some great sources including websites, images, and videos. I was able to use a range of sources to understand and build my plan for the PowerPoint.

Another challenge I faced was choosing the parts of sleep to research. Because sleep was such a broad topic, I had to research a lot of different aspects of sleep. I found out about the man named Peter Tripp and his story was so interesting to me, I included that of two slides of my PowerPoint.

This PowerPoint can help people get a general understanding about how important and necessary sleep is. By making this PowerPoint it has made me very conscious about how much sleep I am getting and the things that can affect it. By making this it has allowed me to learn new things about a topic that has always interested me and something that is so important in our daily lives.

Here are the links to the PowerPoint:

Viewing only:

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Ability to edit:

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