

THE IMPORTANCE OF SLEEP

Andrea Cadavid Ochoa
Antonia Jiménez Moreno
Maria Amelia Fajardo Rico

Group: 9ºAF
Subject: Biology
Teacher: Lorena Cárdenas

Colegio Cumbres
Envigado
2016-2017

POSING QUESTION

Do you really know the importance of sleep?

INDEX

Theoretical frame.....	4
Introduction.....	5
1. Objectives.....	6
1.1 General Objective.....	6
1.2 Specific Objective.....	6
2. What is Sleep?.....	7
3. Stages of Sleep.....	8
3.1 Stage One of Sleep.....	8
3.2 Stage Two of Sleep.....	9
3.3 Stage Three of Sleep.....	10
3.4 Stage Four of Sleep.....	11
3.5 Stage Five of Sleep.....	12
4. Conditions that affect Sleep in Teenagers.....	13
4.1 Obstructive Sleep Apnea.....	13
4.2 Narcolepsy.....	14
4.3 Circadian Rhythm Sleep Disorders.....	15
4.4 Insomnia.....	16
5. Why we need Sleep.....	17
6. How much Sleep do we need.....	18
Cybergraphies	

THEORICAL FRAME

Insomnia: Inability to sleep.

Amnesia: deficit in memory caused by brain damage, disease, or psychological trauma.

Deficit: abnormal function of a body area due to weaker function of the brain, spinal cord, muscles or nerves.

Hippocampus: Located on the floor of each lateral ventricle of the brain. the centre of emotion, memory, and the autonomic system.

Dream: A dream is a succession of images, ideas, emotions, and sensations during certain stages of sleep.

Psychology: is the study of behavior and mind , embracing all aspects of conscious and unconscious experience as well as thought.

Anatomy: is the branch of biology concerned in the study of the structure of organisms and their parts.

Involuntary muscles: are the organs that works without consciousness .

Agressive behavior: type of behavior where people violate other people's rights.

Circadian rhythm: is a 24 hour cycle in the physiological processes of all living beings.

REM: Rapid Eye Movement.

NREM: Non Rapid Eye Movement.

RLS: Restless Legs Syndrome.

Hypersomnia: Excessive daytime sleepiness.

INTRODUCTION

This research paper wants to make people realize that sleep is essential for a healthy lifestyle, mostly on teenage years.

Sleep plays a very important role in your physical, emotional, mental and even social life.

During sleep our whole body experiences several phases. On each one of the stages, we go through different changes.

Teens have irregular sleep patterns, and it is normal at their age, but it is more difficult for them to function in the day. Teens need to sleep from 8 to 10 hours and if not, sleep problems can cause the teenagers to be aggressive and to possibly have bad grades or not being able to focus. Oversleeping or not sleeping enough can lead to eating disorders. We want to prevent this in teenager's lives so they'll be able to have a better life and not being so prone to depression or eating disorders.

1. OBJECTIVES

GENERAL OBJECTIVE

To show the importance of sleep.

SPECIFIC OBJECTIVE

To explain what happens during sleep.

2. WHAT IS SLEEP?

We all have at least a mediocre explanation or idea of what sleep is and why we should rest the appropriate time, but that doesn't mean that this really important and basic activity of our lives is simple or even easy to explain.

Sleep is a truly important and large state in which our muscular and consciousness activity is reduced and in which our brain is normally more active than the time we're awake.

As we're asleep we leave behind consciousness and transport into a new way of seeing the world as we dream. As many people wake up, they don't remember much of what they dreamt of or what they did during or before they were asleep.

Dreams are actually an illusion of the body that does not last long. Most of them actually lasting up to 5 – 10 seconds, while people remember the dream as an all-nighter.

All of us know that humans normally are used to sleep laying down, but the question is, why?

When we sleep, our body releases some fluids or substances that are used to relax our muscles in the process of sleep or unconsciousness. If we are standing while those substances are released, we might hurt ourselves as the muscles relax and causes us to fall or tumble, also, when the body is asleep it's practically paralyzed which stops it from acting out our dreams and hurt ourselves or somebody else in any way.

3. STAGES OF SLEEP

There are five types of stages.

3.1 STAGE ONE OF SLEEP

During stage one our bodies become regularly slower and relaxed. Eyes move slowly and our muscle activity reduces to a small portion. In this stage, it's normal to experience sudden muscle contractions, usually called "hypnic jerks" (Many say because of the common sensation of falling) and not be dreaming or in deep sleep.

This stage is when people are unable to keep awake but are able to weakly hear conversations or respond to movements. Lasts up to 5-10 minutes.

This stage is also known as "light sleep".

3.2 STAGE TWO OF SLEEP

When our bodies enter the second stage of sleep, heart rate slows down and body temperature drops. Our eye movements stop and brain waves start slowing down, but it's normal for those brain waves to occasionally burst for about half a second. (Also called "sleep spindles").

By the time we have reached this stage we are already mostly unconscious or preparing ourselves for deep sleep, meaning that if any sound is heard the sleeper won't be able to recognize or understand the content of the sound or conversation and it is harder to awake

Lasts about 20 minutes and it's the last stage before "deep sleep".

3.3 STAGE THREE OF SLEEP

In stage three our bodies are already entering the phase of deep sleep, kind of like a transition where the sleeper is way less responsive and shows no reaction to the outside sound or background noises, slow brain waves start coming in (Also known as “delta waves”) and the body creates tissue, repairs bones and muscles to heal any injuries or wounds and to strengthen the immune system of the organism.

It is a fact that if you are woken up during this stage, you would feel kind of dizzy or lost for minutes or seconds, also, dreams still do not occur during this sleep although “sleepwalking” does likely happen.

Normally you would reach this stage by being asleep already 20 – 35 minutes.

Fun Fact: If you fall asleep in less than 5 minutes you might be sleep deprived. It should take around 10 minutes.

3.4 STAGE FOUR OF SLEEP

This stage is officially deep sleep (Also referred to as “Delta Sleep” because of the exceed of delta waves during this stage which surpass the 50 percent) and makes up about 20 percent of our sleep. We have been asleep for about 45 minutes now and our body is completely relaxed. Zero muscle activity and zero response to any delicate or light movements and noises. To wake someone up from this stage you’d have to do quite the effort.

Stage four (more likely at the end of this stage) is when most bed-wettings usually happen.

Blood pressure rises and heart rate increases. This stage lasts for about 30 minutes.

3.5 STAGE FIVE OF SLEEP

Stage five is also referred to as the “REM” stage or “Paradoxical sleep”. As the name indicates it, this is when eye movement gets active and fast, heart rate and breathing speed up to the point where they’re uneven while the face, legs and fingers may twitch or have unexpected movements.

Dreaming occurs during this stage as a cause of the increased brain activity, you may get some images or little imaginations but the real, deep dreaming occurs during this stage due to your body being paralyzed in this stage as well. Why is it important to be paralyzed while dreaming? Well, if your body is paralyzed while you dream it stops you from harming yourself either by running into something or jumping out of a high place trying to “escape” or trying to do any stunt during your dream.

Usually, the first period of REM sleep lasts about 10 minutes and the last REM stage can go on for about an hour. This stage normally happens after being asleep 90 minutes.

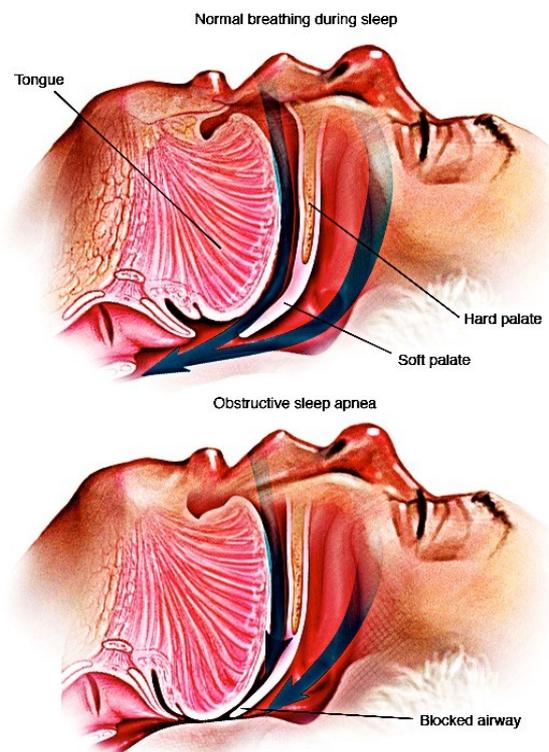
4. CONDITIONS THAT AFFECT SLEEP IN TEENAGERS

4.1 OBSTRUCTIVE SLEEP APNEA

This occurs when the back muscle of the throat gets way too relaxed while sleeping, causing it to be blocked and stopping the air from flowing normally into the lungs. This is actually pretty normal, it can happen many times a night and it's not really that serious but it sure is discomforting and annoying. The bad effect this has on teenagers is that this action stops breathing for at least a second making you wake up several times a night and causing you to be really tired the next day. This might make teens less focused at school.

Overweight teenagers are more prone to suffering from this condition.

Some symptoms are: Irregular breathing, chronic fatigue, headaches, difficulties to focus, snoring.



© MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH. ALL RIGHTS RESERVED.

4.2 NARCOLEPSY

This sleep disorder might cause people (more likely teens) to feel really tired or down during the day, so tired that they might just likely fall asleep anywhere at any time involuntarily. It is also characterized by over sleeping, hallucinations and sleep paralysis.

Symptoms for this disorder usually start showing off in teenagers or children but there are others that actually suffer from the symptoms years before actually getting a proper diagnosis.

As of now, there is no cure for narcolepsy but there are medications that boost symptoms to allow people to live a normal life.

4.3 CIRCADIAN RHYTHM SLEEP DISORDERS

These disorders are a kind of disturbance or malfunctioning of the body's circadian rhythm (what many people call the body's internal clock). Basically, this disorder affects the timing of sleep. Teens that suffer from this disorder find it difficult to go to sleep at the adequate time or sleep the necessary to wake up in time for school or any other activity.

Unless the patient suffers any other disease related to sleep deprivation or insomnia, the quality of sleep of this people is quite normal actually.

One of the most common Circadian Rhythm disorders is Jet Lag. This is when a person travels through many time zones in little time or almost continuously and some of the effects that jet lag causes on the young organism are: Insomnia, day tiredness, low focus and stomach damage.

4.4 INSOMNIA

It's when the teen-- is not really capable or has trouble sleeping during the night or the day. Patients that suffer from this disorder often wake up really early the next day. There are different types of Insomnia. For example, Acute insomnia consists on brief and often episodes of inability to sleep due to stress before a big event or after receiving any bad news.

Chronic Insomnia consists on bad sleep three days a week every three months. There are as many treatments as causes for this type of disorder.

Comorbid insomnia is not being able to sleep due to psychological trouble or physical symptoms or diseases like arthritis.

Some of the causes for insomnia are nasal allergies, gastrointestinal problems, arthritis, asthma, neurological conditions, chronic pain and low back pain.

5. WHY WE NEED SLEEP

There is no scientific reason or explanation of why we actually need to sleep, but there is an animal – based theory that says sleep is necessary for an organism to survive.

A lot of people have got the whole concept of sleep wrong in the case that they say that sleep is just closing your eyes and laying down while our minds are shut off. But what really happens while we sleep is pretty complex and important for survival and the well-being of a person.

One of the most important roles of sleep are: to heal injuries and wounds by growing tissue, muscle and bone, solidify and concrete memories that happen during the day and for them to be stored, processed well and for us to also be able to have a lot more of memories stored in our brains we need a proper amount of sleep during the night to kind of “empty” our brain and get it filled again the next day.

If a person does not sleep for many days they might start experiencing hallucinations, memory loss (temporary) and mood swings, and if a teenager does not sleep for many days, they start getting more prone everyday to depression

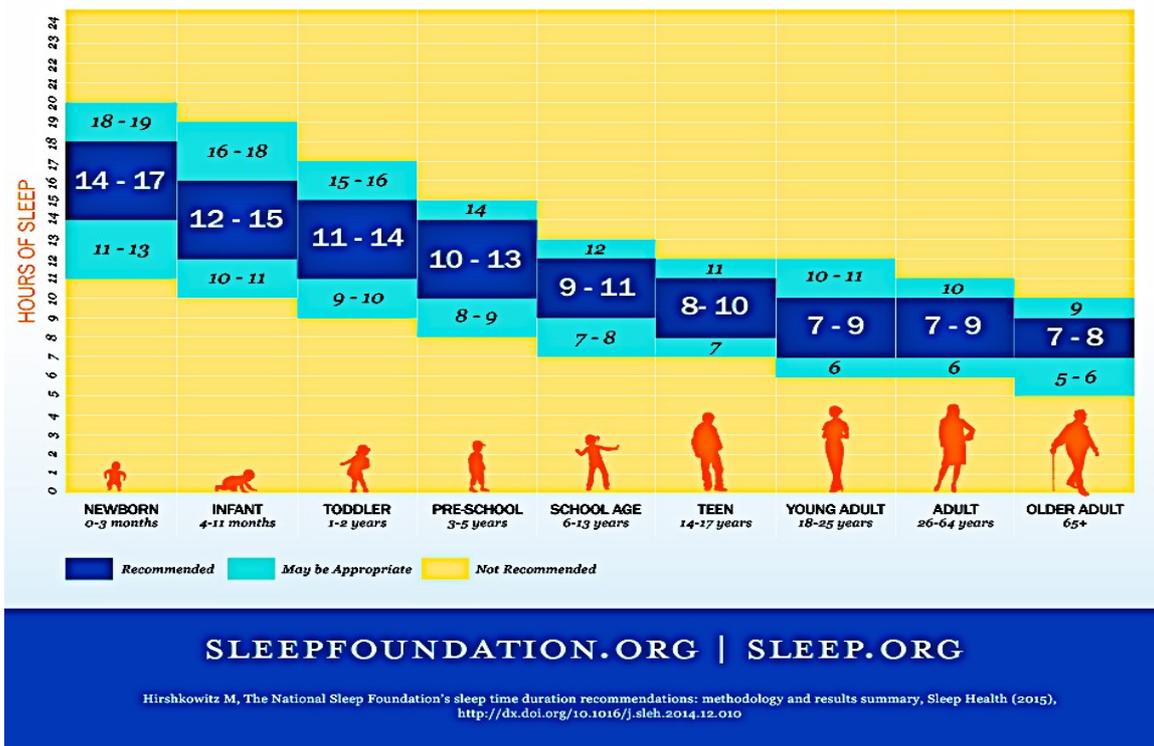
6. HOW MUCH SLEEP DO WE NEED

There is an appropriate time of sleep for every single age. As a baby, you of course need more sleep for the adequate development and as an adult or older person, you might be needing a little less, but no less than 8 hours.

Now a days, teenagers are the best example for poor sleep. Some stay up until really late playing or watching their phones or partying, drinking energy drinks to get through the night to the point where they get even less than 4 hours of sleep, which is obviously really bad for the organism, as the minimum time of sleep one needs is at least 8 hours.



SLEEP DURATION RECOMMENDATIONS



CONCLUSIONS

- Sleep is truly important and essential for a healthy, adequate living for teenagers to develop correctly.
- It's important to beware all the diseases and avoid getting them at such a young age by having a good night's sleep.
- If a teenager loses a lot of sleep this might really affect his/her academic development and mental health.

CYBERGRAPHIES

- <https://www.takingcharge.csh.umn.edu/enhance-your-wellbeing/health/sleep/what-sleep>

- <http://www.howsleepworks.com/what.html>
- <http://healthysleep.med.harvard.edu/healthy/science/what>
- <https://sleepfoundation.org/sleep-topics/teens-and-sleep>
- <https://www.nhlbi.nih.gov/health/health-topics/topics/sdd/why>
- <http://brainblogger.com/2016/05/15/why-do-we-need-to-sleep/>
- <http://www.world-of-lucid-dreaming.com/the-stages-of-sleep.html>
- <https://www.sleepassociation.org/patients-general-public/what-is-sleep/>
- <https://sleepfoundation.org/excessivesleepiness/content/why-do-we-need-sleep>
- <https://sleepfoundation.org/sleep-topics/teens-and-sleep>
- <https://sleepfoundation.org/how-sleep-works/how-much-sleep-do-we-really-need>
- <https://sleepfoundation.org/excessivesleepiness/content/why-do-we-need-sleep>