

Why Do We Sleep?



Sleep is known to be a very important part of our life that can't be taken for granted which means that we need to make sure that we always get enough hours of sleep. You may be asking yourself, how much is really enough? Well According to the Centers for Disease Control and Prevention the amount of hours that a person needs of sleep all depends on the age range in which they fall in. For example, according to this source it states that NewBorns (0-3 months) are recommended to sleep a total of 14-17 hours a day, infants (4-12 months) normally need 12-16 hours of sleep per day including naps, toddlers (1-2yrs) need 11-14 hours including naps, pre schoolers (3-5 yrs) need a total of 10-13 hours including naps, school aged children (6-12yrs) need 9-12 hours per day, teens (13-18 yrs) need 8-10 hours of sleep per day and adults (18-60) need 7 or more hours of sleep per day, (61-64 yrs) need 7-9 hours and (65 yrs and older) need 7-8 hours per night.

Besides the majority of people asking themselves how much sleep is enough. They might also question themselves, well what is the whole purpose of sleeping anyways..why do we need it? Well according to Russell Foster who is a circadian neuroscientist and studies the sleep cycles of the brain. In a TED talk he educates us about the possible ideas as to why we sleep. The first one being the Restoration Idea. Where replacement, rebuiltment and restorement occurs of all the things we used up during the day.

According to research in order for this to happen our body needs help from these specific genes that are associated with the metabolic process and restoration and they are only activated or turned on during the time that we are asleep.

Additionally the second idea that has been developed according to the presenter is energy conservation this is where a total of 110 calories are kept stored in our body throughout or sleeping time

Finally the last idea that he states in his presentation is Brain processing and memory consolidation. In his description about this last idea he says that the way sleep helps us with our brain processing is by gives us huge advantages when it comes to decision making and it also enhances our creativity. The way that it takes part in memory consolidation is that during our sleeping time, the neural connections that are highly important are linked and strengthen while on the other hand the ones that aren't important or simply just less important get faded away.

Additionally he also emphasizes on the idea that as the years go the human population keeps getting less sleep per night which can lead to serious consequences. One of them being weight gain because sleeping less than 5 hours per night leads to your body creating more ghrelin hormones which is what makes you hungry and if your body keeps producing more than the normal rate then you can be exposing yourself to this issue which many people all around the world are dealing with.

Sleeping less can also lead to stress because you may not be sleeping well and then that stress could affect your immune system and make you be at a higher risk of overall infections, stress can also lead to cardiovascular diseases because of the rise of blood pressure, and it can also lead to diabetes 2 because in his presentation he states that when a person has high levels of stress then that causes glucose to be thrown into the persons circulation, later on that glucose becomes a dominant part in the individuals body which can turn to glucose intolerant to then having diabetes 2.

Furthermore according to more research that has been done as to why we sleep or what happens as we sleep. Research have come to the conclusion that there are two major stages of sleep that everyone experiences during their night's sleep. The first one being REM sleep which can also be known as rapid eye movement and the second one is Non- REM which can also be known as non rapid eye movement.

According to Dr. Stuart Quan, clinical director of the division of sleep and circadian disorders at Brigham and Women's Hospital in Boston. Non - REM sleep is broken down into three stages. Starting from N1 which is when a person is going from being awake to soon falling asleep which lasts about 5 -10 minutes and through this stage what happens is that heart and breathing rate lowers, your muscles become relaxed and the eye movement becomes slower, your body temperature and brain waves lowers as well. N1 is the first stage a person enters when sleeping which is why you can easily be awoken from your sleep at this point. The second stage of non- rem is N2 which normally lasts between 10-25 min and everything from N1 continues to happen but at a deeper level. According to research N2 is the stage where the majority of

individuals spend time in while sleeping. Finally the second stage of Non- REM is N3 which is also known as the deep sleep because this is the stage that is highly important for every individual because this is the stage where everything is absolutely relaxed which is what is needed to feel fully rested the next morning. Additionally according to Dr. Stuart Quan this is a stage that goes on for about 20 to 40 min and it is the stage where the brain is less interacted with its surrounding setting therefore it is hard to wake a person up during this stage and if that person does get woken up then the individual will be disoriented. Additionally the slow rates of the heart, brain waves and breathing continue.

Interestingly Dr. Stuart Quan also states that this is the stage where sleepwalking, talking and nightmares mostly occur.

Moving into REM sleep, this is the stage that a person normally first enters about 90 minutes later he or she has fallen asleep and is going throughout the 3 stages of non rem. The things that happen to the individual throughout this stage is that their eyes move rapidly from side to side, their heart rate increases, their blood pressure rises. But then decreases after a while and then back to how the stage started.

Additionally, according to experts, this is the stage where the brain is a lot more active and it is the stage where the brain processes information that was gathered throughout the day and is stored in our long term memories.

Lastly there were statements going around that nap taking helped lower the risks of cardiovascular diseases but haven't been scientifically proven which is why those statements haven't become official and naps are just seen as helpful when it comes to recovering from a night where you slept less than what was needed.

Annotated bibliography:

CDC - How Much Sleep Do I Need? - Sleep and Sleep Disorders. (2017, March 2). Retrieved from https://www.cdc.gov/sleep/about_sleep/how_much_sleep.html.

The purpose of the chart that informs us about how much sleep we need depends on our age that comes from the CDC website is to give us a quick and clear summary about what is suggested to be healthy for us based on the research that professionals have done. The thesis of this source is that there are always different types of guides which people may follow and that it may not be the same for everyone due to a variety of different factors. This source is useful to me as I do my research on the topic of sleep because it has provided me with general information which I can use to start off my project and then later on move into more specific topics about sleeping. The style of writing that this source reflects is very to the point and laid out in a clear way which allows the reader to clearly follow along with the information that is being provided. What makes this source very clear is the special feature that is included within it which in this case it is a chart that is divided into two columns one being “age group” and the other one “recommended hours of sleep per day” and then underneath each column we can see the specific information layout starting from the newborn stage up to the adult stage and so because this source was organized in a chronological way it what made it clear and not to understand at all. Finally the audience of this source would be the general public specifically individuals who are professionals or students that are doing research on the topic of sleep.

Daniels, K. F. (2019, September 13). Survey says: napping can be good or bad for heart health. Retrieved from <https://www.nydailynews.com/news/national/ny-heart-survey-napping-good-or-bad-cardiovascular-disease-20190913-oiuyobdatvcyfnz4ma6qkvvqb4-story.html>.

The purpose of the short article called “surveys says: napping can be good or bad for heart health” from Daily News is to inform the reader that taking naps doesn't have great effects on our lives, like others have stated others have stated. The thesis of this article is that even though many have stated that naps could possibly have positive impacts on our health it still hasn't been completely proven which is why we cant state that statement as a fact. This source is useful to me as I do my research on the topic of sleep because I can state how the how the topic of a nap has had a lot of interpretations and how they are totally different compared to how professionals view the idea of taking naps.

REM vs. Non-REM Sleep: The Stages of Sleep. (n.d.). Retrieved from <https://www.livescience.com/59872-stages-of-sleep.html>.

The purpose of the short article titled “REM vs. Non-REM Sleep: The Stages of Sleep” from Live Science is to inform us about the many things that happen to our body while sleeping in addition to introducing the two major stages or categories of sleep which REM and Non-REM sleep this source informs us that we all go through these two stages while we sleep but the time

spent in each stage may vary from person to person and that they happen in an orderly way. The thesis of this short article is that both REM and Non- REM sleep are essential to our sleeping time because they are both beneficial to us in their own way by either providing us with time in where we are fully in a relaxed stage or by also placing us in a time where important information from our day gets processed and stored so that it becomes part of our memory and is never forgotten. This source is useful to me as I do my research on the topic of sleep because it provides me with more specific information that I can include and will help me build on the idea as to why we sleep. This sources relates to my topic because it informs us about the many things that occur to us while we sleep with details like for example exact time period for how long things may occur for. Additionally what the author did to obtain the information that he wrote about in his article was that he reached out to a professional who is educated on the topic of sleep. For example for this article he reached out to Dr. Stuart Quan who is the clinical director of the division of sleep and circadian disorders at Brigham and Women's Hospital in Boston. Knowing that the author reached out to a professional is what helps the reader know that this information is reliable. Finally the audience that the author is writing to would be the general public and especially individuals who are interested in learning about this topic.

(n.d.). Retrieved from <https://www.youtube.com/watch?v=LWULB9Aoooc>.

The purpose of the TED Talk titled “Why do we need sleep” is to inform us about 3 essential ideas or reasons as to why sleeping is something that is part of our lives. In addition he also explains to us why sleep is highly important and shouldnt be taken for granted. The presenters thesis is that sleeping is highly important in our lives and if we don't sleep efficiently we can lead us to serious health problems. Consequence that has been occurring a lot because as the years have gone by, people have been getting less hours of sleep. This source is useful to me as I do my research on the topic of sleep because it has provided me with more information that I can include while introducing the topic in the beginning of my research project. The significant features that he included in his presentation were images and diagrams that directly connected to what he was talking about in that specific moment which allows the view to better understand the information being said and being able to follow along with it. The research method that the presenter decided to base his presentation was focused on the research that he along with other professionals have gathered because he is a professional who also studies the sleep cycles of the brain.

