

Lifeline

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PREFACE

Dear reader,

It's already the third Lifeline of the year! My time as chairwoman goes quicker than I thought it would go. This could not be done without my amazing committee and I cannot dream of a better group of Lifeliners and friends than I have now. But there are many things we can dream of, and so this Lifeline will be all about dreams! A theme perfect for all sleepy people out here, which definitely includes me :). Don't worry though, we stayed awake and worked hard to make another great edition for you full of interesting pieces, such as Juultje's article about sleep paralysis and Meiske's article about lucid dreaming. If however these articles don't speak to you since you are not the snoozy type, you probably just don't have the right bed, what other reason could there be? If that is the case, you should check out our review, which is a special one this time. With this I hope I have made you curious enough to start reading. Enjoy!

Hugs and kisses,

Nadia van Eekelen

Lifeline editor in chief 2019-2020



Dear reader,

I dreamed a dream in times gone by on a midsummer night. And what a night it was, the middle of summer but chilling without compare. As I walked on Elm street, it dawned on me, a new day, a new chance perhaps to dream a little dreary. When I woke, the dream had gone by. Funny right, how a dream can sometimes get stuck in your mind, but when you think about it, you lose grasp of what you were thinking, just like grains of golden sand. Did you know that we spend about a third of our lives asleep? Crazy right how we spend so much time asleep while we might not always remember our thoughts. A dream is beholden to the realm of mystery. Once every while, the border fades between dreams and reality, and clarity is lacking. These situations manifest themselves without being called. However, they are sometimes enforced by the consumption of large quantities of alcohol.

*Here I stand,
With a drink in my hand.
While I take a sip,
And look really quick,
I see the beginning of the dawn,
And wonder where all my friends have gone?
Is all that we see or seem,
But a dream within a dream?*

On behalf of the fourteenth board,

Sami Balahsioui

Chairman of GLV Idun 2019-2020

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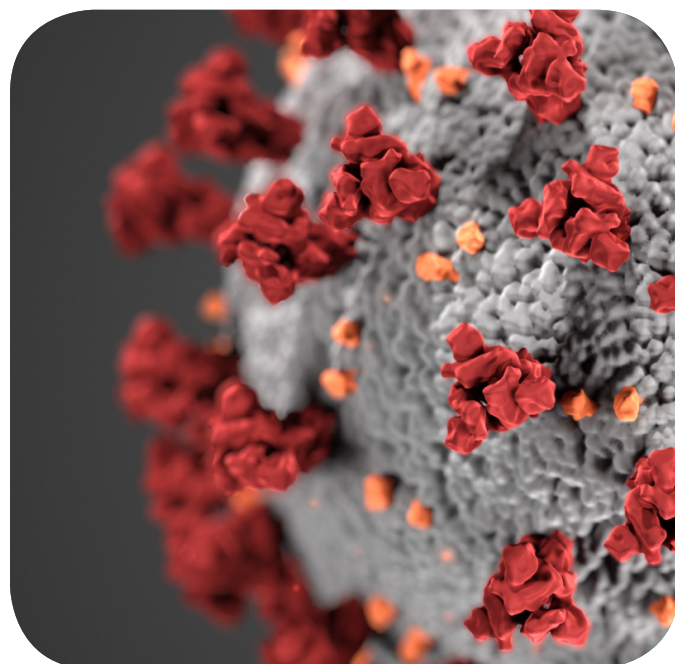


By Koen Freerks

Novel coronavirus protein mapped

The spread of a novel coronavirus strain (COVID-19) has been declared a public health emergency of international concern by the World Health Organisation (WHO). This virus emerged in the Chinese city of Wuhan in China and has been spread around the globe. As the number of cases and deaths are still rising, the need for vaccines is becoming increasingly important. To ramp up the development of vaccines to help with the increasing pandemic threat, a group of researchers have mapped the molecular structure of a protein that plays an important role in invading cells.

Jason McLellan, senior author of the study and an associate professor at the University of Texas, said in an interview by UTnews that mapping this key part, called the spike protein, is an essential step in the development of vaccines to combat the virus. Jason McLellan and his colleagues have many years of experience studying Coronaviruses. Their previous experiences with other Coronaviruses, including SARS-cov and MERS-cov, have helped them in mapping the protein. Ph.D. student Daniel Wrapp and research associate Nianshuang Wang were in charge of the main research of the spike protein. The genome of COVID-19 that was provided by Chinese researchers was used by the team to design and produces samples of their spike protein sample. After twelve days they reconstructed the molecular structure of the protein.



The spike protein is used by different coronaviruses to attach themselves to cells. Preventing this attachment would prevent entry of the viral DNA. The mapped protein has been distributed to many other institutes around the world to ramp up the development of new vaccines to target the novel coronavirus. McLellan said in an interview with LiveScience that a vaccine is likely still about 18 to 24 months away, but that it's still quite fast compared to normal vaccine development, which might take around 10 years. The study was published in the journal Science.

Using psychedelics to treat depression and PTSD

Ever since the 70's, society has formed barriers and government bans against psychedelic drugs as they were fuelling the anti-establishment movement during those times. Psychedelics create a dreamlike state when ingested. It can be used both medicinally and recreationally. Nonetheless, many people continued to use psychedelic drugs for personal growth and introspection. One of these people was Rick Doblin. Doblin was the founder of the Multidisciplinary Association for Psychedelic Studies (MAPS). During the 1970s, Nixon created the War on Drugs, which was a largely unsuccessful campaign with an aim to reduce the trade of illicit drugs in the world. Consequently, psychedelics were put on the list of Schedule 1 drugs. This schedule categorized the drugs as being addictive and having no medicinal value. Doblin saw the potential of psychedelics and rejected notion that these drugs have no use in medicine.

At the time that MAPS was founded, many psychedelics were categorized as Schedule 1 drugs. Nevertheless, Doblin was determined. The US Food and Drug Administration (FDA) gave his organization permission to start investigating the psychedelic drug MDMA in 1992. Back in the 1970s, MDMA was used by a group of psychotherapists when it was still legal. The beneficial effects of MDMA were already documented before the War on Drugs. The ban moved MDMA to the underground world, which eventually made the drug widespread as a recreational drug. The fact that the FDA started being more liberal to psychedelics makes way to bringing MDMA back to where it came from: mental health research.

Many years later, MAPS has two ongoing phase 3 trials on MDMA for PTSD treatment. Also, the FDA granted the trials "Breakthrough Therapy" designation. This is to speed up the development and review of the drug, because it is intended to treat a serious condition and shows results of being a substantial improvement over current drugs and therapies. Phase 2 results reveal that 54.2% of the participants had lost the criteria for having PTSD after two sessions, as compared to the 22.6% of the control group.

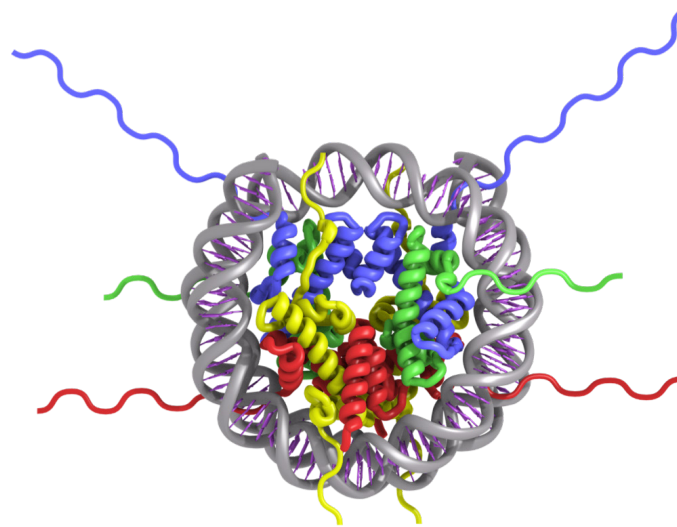
MAPS is not the only organization doing research on psychedelics. In the University Medical Center Groningen (UMCG). Prof. dr. R.A. Schoevers is currently studying the effects of Psilocybin on treatment resistant depression. Psilocybin, which is the active ingredient in magic mushrooms, shows promising results from previous studies according to Schoevers. Results show that after one session psilocybin relieves depression for up to 6 months. The goal of the current study is help relieve depressive symptoms in depressed patients. The research of this study is done in multiple hospitals, including UMC Groningen and UMC Utrecht along many other in Europe and Northern-America.

Psychedelic research is in a renaissance, with two dedicated research centres opened in 2019. The Imperial College London and Johns Hopkins University have been actively studying the potential of psychedelics since the turn of the millennium. The opening of these centres pushes the field even more forward. Robin Carhart-Harris is the director of the Imperial College Centre for Psychedelic Research. Using fMRI imaging, the goal of the centre is to study how psychedelics work in the brain. Carhart-Harris and his team showed that psychedelics create a dreamlike state by functioning as direct agonists to serotonin receptors. There are also studies running on the effects of psychedelic on major depressive disorder, which show very promising results. The John Hopkins University have a different approach to psychedelic studies. Studies have been done in how to safely guide a psychedelic trip in a clinical setting. Also, they have done small studies on the effect of psychedelics on existential despair, addiction and depression.

Many more research centres and institutes are studying the effects on psychedelics at this very moment, and results are promising. Nearly all funding has come from philanthropists, rather than governments. This shows that psychedelics are still carrying a stigma from the War on Drugs. Nonetheless, psychedelics can be useful for therapy in a clinical setting. But researchers around the world are warning that we need to be cautious with psychedelics. "Psychedelics must be administered within a particular contextual framework," according to Carhart-Harris. "Patients need to be prepared prior to the experience, have compassionate psychological support during the experience, and [have] someone available upon landing to listen and help process the experience." Self-administering of psychedelics can be dangerous. As said by Rick Doblin: "Psychedelics are like a knife: healing when used by a skilled surgeon and potentially deadly when used irresponsibly"

DREAMING OF dREAMs

By Dana Frank



densely packed, it cannot be accessed by transcription factors, which are needed to express them.

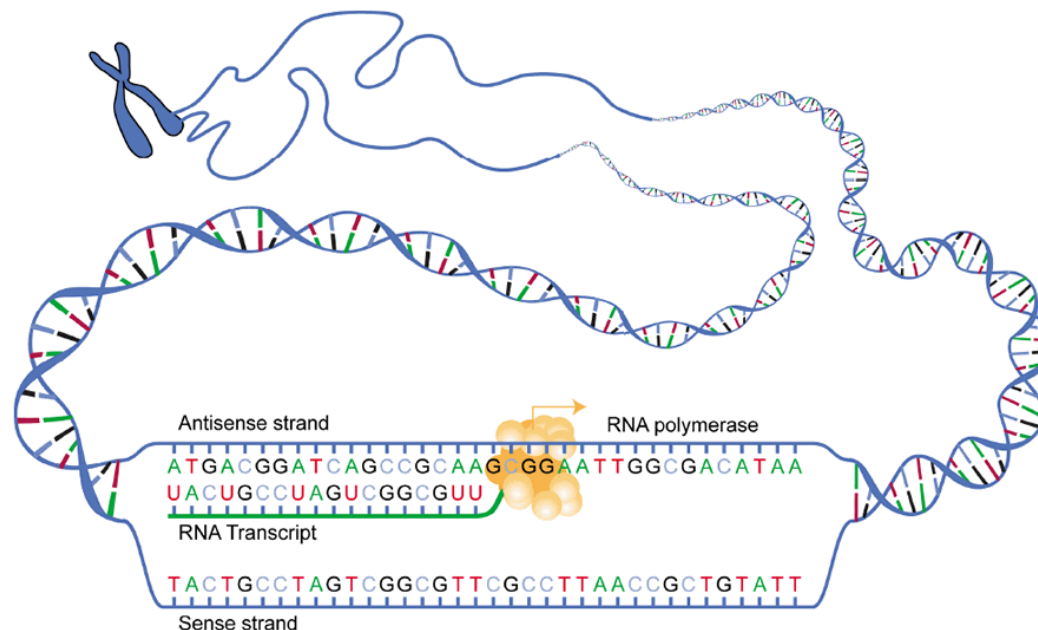
For DNA to be in its active form, it typically takes on some chemical signatures. For instance, nucleosomes (the octamer of histones) are acetylated in their 'loose' form and deacetylated when the information they carry is silent. The dREAM complex takes advantage of this, by binding to non-acetylated nucleosomes and blocking activation in the first place, and thus, the DNA remains inaccessible. In the case of dREAMs, the genes which regulate the cell cycle are either switched on or off. Crafty, right?

In the 20th century, genetics began concretely replacing old notions of heredity. Still, the problems of non-parallel genetic interactions began puzzling people, the details of which were put aside in an assortment of uncertainty. When it became clear that allelic composition could not illuminate every gap, everything was revisited; heredity is a strategy game, as it were. The idea that phenotypes arise from the interaction of genes and their products and not just the genes themselves became apparent, as well as the further evolutionary implications of these processes.

There is no one-to-one relationship between what is in a genome and what comes out of it. New traits come about not because new genes are made, but because old genes are regulated differently. This new way of thinking about life has become its own field of disciplines. Epigenetics, development, and basically, every new emerging topic in genetics examines this concept. We constantly discover new ways in which genes do not play by classical rules, and the more we learn, the more fascinating, complex, and beautiful the picture of life becomes.

It is tempting to assume omniscience in biology based solely on a genetic viewpoint. The vast gap between genotype and phenotype is easy to ignore. But regulation, especially in eukaryotes, is the driving process behind the nuances of genetic expression. The switching on and off of genes, by mechanisms that tangle together in an interlinking web of causation, don't always play by the rules of the genome. One way to obscure the direct message of DNA is to repress the reading, or expression, of specific genes. That is to say, that the words which describe certain traits are written down, but not read.

The dREAM complex (Drosophila RBF, E2F, and Myb-interacting proteins) is a repressor of transcription in Drosophila, but it behaves unusually. Most repressors of this type use enzymes that directly modify chromatin, making it more compact, or binding to histones, the spools around which DNA threads are wound. These mechanisms turn off genes because when DNA is



Interview with Siobhan Brushett

Let me introduce you to Siobhan Brushett. She is 26 years old, and she is currently a Phd student. She did the master **Molecular Medicine and Innovative Treatment**. In this interview, she is going to talk about her master studies and experiences.



Please tell us a little about yourself.

I was born and raised in beautiful, sunny Cape Town in South Africa. It was there, at the University of Cape Town, that I completed my bachelor's in Genetics and Microbiology and my BMSc(Hons) in Human Genetics. I came to the Netherlands because I wanted something different. I wanted to go abroad, I wanted to experience being abroad, grow as a person, exposed to scientists who are well known for their work in the field, and learn new techniques.

What attracted you to this programme?

This programme is very unique because of its setup. I was very attracted to the fact that the study has different areas that we could focus on, such as Oncology, Neuroscience, Infection and Immunity, Nutrition and Metabolism, Systems Medicine, Drug Innovation. You get an insight into all of them before choosing your specialization. I found it very helpful because even though you study a lot and go through a lot during university, you don't necessarily know where your passion lies. So, it was really nice to be able to separate different areas. Therefore, I could decide: Okay, this is what I like.

"I was very attracted to the fact that the study has different areas that we could focus on..."

What are the main features of the programme?

In the beginning, it is very course intensive. A couple of weeks of classes, learning a lot, presenting a lot, writing assignments, both in groups and individually. After that, we got to choose an internship that we want to do at the UMCG. That really helped to find out what I wanted to do. For the second internship, I had a lot of resources and helped to go to the most suitable place. It is also possible to go abroad, of course. I have friends who went to the US. I went to Cambridge, and I absolutely loved it. I was able to work again with the researcher of the top of their field. At the end of the master we had to write a PhD proposal with a principal investigator (PI) of our choice. The PI guides you through the PhD proposal, it is very structured. You have crazy deadlines. It is very complex since it becomes your project for the next three or four years.

"Eventually, I did feel like a scientist..."

What did you really like about the programme?

The master students are very international. You are exposed to many different things, such as different communication styles, social issues that happened in other countries. You don't even notice that, while you are being trained to become a scientist, you also develop soft skills that allow you to understand people better and communicate with everyone across the world. Even more than this, everyone has a different background. Anytime, when you need information, you can ask your friends, because the knowledge of the group, is so complex and broad. I can imagine that one day we will also work together and use all these connections and knowledge to create something great.

What was one of the best experiences of your master?

Once I went to a conference while I was working on a project. There I met with the people who I cited for my project, and it was amazing to see, meet and have discussions with those people who created the papers that I used for my own project and cited them.

What is the biggest challenge of the study?

You work very hard, and that is very challenging but also rewarding. But people who chose this programme do want to work very hard. It is our decision.

What is the biggest benefit of this study?

The biggest benefit for me that when I started, I didn't feel like a scientist, but when I finished, I had the skills, I was independent, and I developed the confidence to be one, so eventually, I did feel like a scientist.

What can you do with MMIT?

Many things. You can go on a PhD. Furthermore you can become a research assistant in a lab, you can work in various industries, so it depends on what you want to do.

For who would you recommend MMIT?

People who are passionate about science and learning.



LUCID DREAMING

HOW IT WORKS AND HOW TO DO IT



By Meiske Pieters

You may have heard of this type of dreaming before. A dream in which you can decide what happens, where you are or what you do. This is however not necessarily the case in *lucid dreaming*. The term lucid dreaming was first used by a Dutch author and psychiatrist, Frederik van Eeden, who studied his own dreams since 1896. He described lucid dreaming as “...the reintegration of the psychic functions is so complete that the sleeper remembers day-life and his own condition, reaches a state of perfect awareness, and is able to direct his attention, and to attempt

you’re paralyzed just like in normal REM sleep, so you won’t act out your dreams. But how on earth do you prove someone is lucid dreaming? Apparently with an electrooculogram, a technique to record eye movements. Lucid dreamers in a recent case study were asked to move their eyes from left to right two times and then clench their right hand for around 10 seconds as soon as they reach lucidity while dreaming. They had to repeat this as long as possible. Meanwhile the scientists would start the fMRI and EEG data collection as soon as they saw the participants were in REM sleep. On the fMRI they could see what areas were most activated. They found that certain areas, usually deactivated during REM sleep, were now activated. The precuneus increased strongest in activation, which is implicated in self-referential processing. So, it is involved in self-perception and first-person perspective. Which is of course very much related to lucid dreaming, where you aware of yourself. They also found activation in the dorsolateral prefrontal cortex during lucid dreaming, which is associated with working memory and is deactivated in normal REM sleep. This may indicate the working memory demands related to the task in the experiment. Seems very logical but keep in mind this was a case study and the results are based on 2 participants.

Are you not naturally gifted to lucid dreaming? Want to try for yourself? Here are some tips to help you get started. Begin with a dark, quiet and in general peaceful environment. You might want to listen to music with binaural beats since this slows down your slow brainwave activity and helps you relax. It could even induce lucid dreaming. In short, to create a binaural beat you use two different low tones in each ear, causing the perception of a third tone. The frequency of this binaural beat is the difference in Hertz between the two low tones, a frequency the brain apparently likes. With this knowledge I think you can start practicing! It might take a while, like a year or something, before you experience your first lucid dream.

SHORT NOTE

Neural Correlates of Dream Lucidity Obtained from Contrasting Lucid versus Non-Lucid REM Sleep: A Combined EEG/fMRI Case Study

Martin Dresler, PhD^{1*}; Renate Wehrle, PhD^{1*}; Victor I. Spoomaker, PhD¹; Stefan P. Koch, PhD²; Florian Holsboer, MD, PhD³; Axel Steiger, MD¹; Hellmuth Obrig, MD^{2,3,4}; Philipp G. Sämann, MD³; Michael Czisch, PhD¹

*Drs. Dresler and Wehrle contributed equally.

¹Max Planck Institute of Psychiatry, Munich, Germany; ²Berlin Neuroimaging Center, Charité University Hospital, Berlin, Germany; ³Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany; ⁴Clinic for Cognitive Neurology, University Hospital Leipzig, Germany

Study Objectives: To investigate the neural correlates of lucid dreaming.

Design: Parallel EEG/fMRI recordings of night sleep.

Setting: Sleep laboratory and fMRI facilities.

Participants: Four experienced lucid dreamers.

Interventions: N/A.

Measurements and Results: Out of 4 participants, one subject had 2 episodes of verified lucid REM sleep of sufficient length to be analyzed by fMRI. During lucid dreaming the bilateral precuneus, cuneus, parietal lobules, and prefrontal and occipito-temporal cortices activated strongly as compared with non-lucid REM sleep.

Conclusions: In line with recent EEG data, lucid dreaming was associated with a reactivation of areas which are normally deactivated during REM sleep. This pattern of activity can explain the recovery of reflective cognitive capabilities that are the hallmark of lucid dreaming.

Keywords: REM, lucid dreaming, fMRI

Citation: Dresler M; Wehrle R; Spoomaker VI; Koch SP; Holsboer F; Steiger A; Obrig H; Sämann PG; Czisch M. Neural correlates of dream lucid-

A TRIP TO DREAMLAND



By Nadia van Eekelen



For this edition, I thought it would be nice to write about one of my own dreams. If you know me, you know I took some time off in my master’s and went to Finland for a week. I love Scandinavia and always wanted to go to a more northern place, so this time the destination was Enontekiö, Lapland. To go to Lapland in the middle of winter is quite the experience, and on some days the temperature got to -28 degrees! Nevertheless, we survived, and I’m here to tell you about the highlights of this mind-blowing trip!

My mom and I arrived in a fairy-tale-like setting in which everything was covered in bright white snow up till our waist or even higher. This amount of snow got everybody to let out their inner-child again and make snow-angels and have snowball-fights. You can’t blame us, right?

We didn’t want to miss out on anything, of course, so we booked all excursions. I was really excited for the first one, which was a visit



to the reindeer farm. It was weird to see that the inhabitants here own reindeer the same way as we own cows or sheep. The differences are that reindeer are much cuter and walk around freely in the wild, and are equipped with GPS-trackers and owner-specific cuts in their ears. The thing I noticed immediately was that some reindeer had only 1 antler instead of 2, or even none. This is not because of their sex, because both male and female reindeer have antlers. The reindeer-owner told us this is because they shed their antlers off

during the winter, only to grow them back during the summer. Their antlers contain blood vessels, which slowly die out during the year, causing them to fall off without losing too much blood. It doesn’t hurt the reindeer though, since the antlers do not contain nerves. And to finally end the discussion on the sex of Santa’s Rudolph; males shed their antlers off earlier than females, most likely before December, so ‘he’ is a girl. Actually, all Santa’s reindeer are.

The second surprising experience was the husky safari. I’m more of a cat-person really, but after seeing those big blue eyes of the sled-dogs, I was convinced it was going to be awesome. The husky-owner had more than 200 dogs, and she knew absolutely everything about every one of them. We went at sunrise on a day that, as the husky-owner said, was pretty hot. Meanwhile, we were wearing 2 layers of thermo-clothing, jeans, 4 pairs of socks, thick sweaters, a winter jacket, a water-and-windproof overall, two pairs of gloves, a balaclava, and a hat. But alright, it was hot outside, sure. For some sled dogs however, it really was too hot to be active. Luckily there were plenty of others really eager to run, and it was an unforgettable day.

To save the best for last, we got incredibly lucky and got to see the Northern lights twice. It was hard to take pictures, as the lights kept dancing and circling around in the dark sky above us. The auroras were bright green, and sometimes a bit of pink and purple popped up. It was surreal and overwhelming to see, proven by all



the “ooooohh” and “aaaahh” sounds made by us and the group of people standing on the ice around us. While everyone was trying to find the right settings on their camera to capture everything, I decided to just lay down on my back, in my huge overall, in the deep layer of snow and enjoy this phenomenon (mostly because it was too cold for me to take off my gloves).

A trip to Lapland is, without a doubt, worth taking, especially for all biology and nature lovers here! Besides the experiences I talked about here, we also drove around on snow scooters and took long walks. For the latter, I can only give you one tip: do not step aside from the made walking tracks if you’re not wearing large snowshoes, because you will disappear in the snow, and people will have to dig you out. I speak from experience.



MR. SANDMAN, BRING ME A DREAM



By Marit Bonne

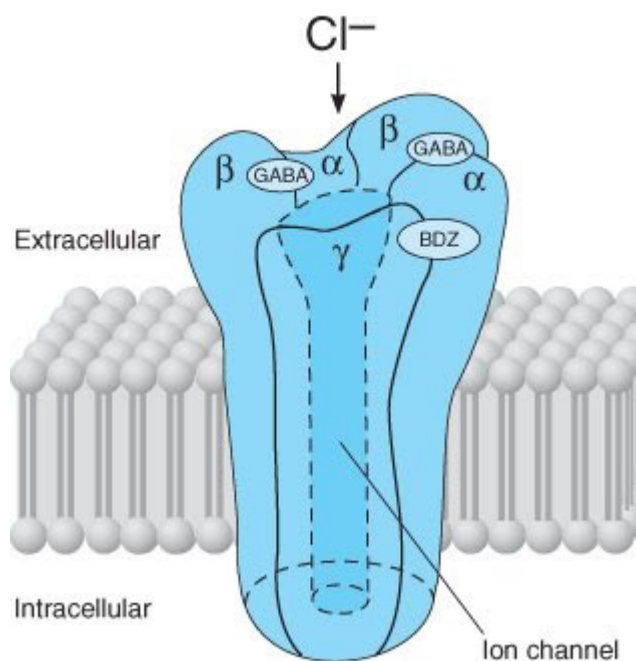
Mr. Sandman, Sleeping Beauty and Snow White. The main thing these characters taught us? A good night sleep is nothing more than a fairy tale. Therefore, people are searching for a magic potion in order to doze off and gain a few extra hours at night. In reality though, these magic potions (read: pills) are called the Benzodiazepines.

Benzodiazepines, or so-called Benzos, are used by about 750 thousand people every night in the Netherlands alone. European prevalence studies show that along with cannabis, benzodiazepines are the most used psychoactive substances, when alcohol was

sleeping stages makes that a 'Benzo-sleep' does not make you feel as rested as a regular night sleep would.

The modulation of especially the REM-sleep makes one wonder if there are alterations in dreams of Benzo-users, as dreams occur mostly in this stage. It shows that this really depends on what kind of Benzodiazepine a person is using and the effect of the drug on dreams significantly differs between individuals. There are cases where people report an increase in lucid dreaming, they have more vivid dream (but also nightmares), while others do not report any alteration in their dreams at all. With these very contrasting experiences, it is hard to say what the exact impact of Benzos on dreams is. However, when people go through a withdrawal period of any kind of Benzos, vivid dreams and a lot of nightmares occur.

The magic a lot of people are looking for in Benzodiazepines is not to be found. Users may seem to sleep better at first, but they are not as rested as they would be without the drugs. We do not know a lot about sleep and dreaming (yet) and thus the consequences of modulating your sleep stages can be more harmful than we now think, even if we experience no alterations in our dreams. For now, we don't know much about Benzos, but there is one thing that is certain: Benzodiazepines do not make all your dreams come true.



excluded. These drugs can help people with anxiety, insomnia, panic attacks and other psychological disorders but is also often prescribed when people have trouble sleeping for a few weeks. This last group may seem harmless, but they are mainly the ones that abuse Benzodiazepines, which leads to addiction or even worse sleeping problems than before.

Hypnotic sleeping pills like Benzodiazepines target ligand-gated GABA(A)-receptors, which belong to the most important inhibitory neurotransmitter in the central nervous system. When bound to this receptor, it allows an influx of chloride into the cell, which hyperpolarizes the neuron. This makes it extremely hard to form an action potential and pass signals through the brain. The agonizing of these GABA(A)-receptors with the medicines results in a modification of particularly two important sleeping stages: the slow wave sleep (SWS) and the REM-sleep. Benzos increase the intermediate stage between those two, at the expense of both SWS and the REM. Research shows that users of sleeping pills spent more time in stage two and thus suppressed in their amount of deep sleep (characterized by SWS). This alteration in



MUSIC SECTION

DREAM UNTIL YOUR BALLS TURN BLUE



By Devi Seijkens

Scene: It's the 70's. Glam rock is at an all time high. Long hair, smoking guitars and high pitched lead vocals are the best thing in the music industry. Feeling it yet? Me neither, but there were 4 men who definitely kept dreaming. And as it turned out, all they had to do was Dream On. No puzzles this time around, this music section will be all about Aerosmith, and more specifically their most successful hit: Dream On.

Aerosmith was founded after Steven Tyler (Vocals/Piano) saw Joe Perry (Guitar) and Tom Hamilton (Bass) play a show with a different band, the Jam Band. They soon after recruited Joey Kramer (Drums) and Ray Tabano (Guitar), but Brad Withford swiftly replaced Tabano. After creating somewhat of a following in the early 70's, Aerosmith was signed to Columbia Records in 1972. Soon after, in 1973, their self-titled debut album was released. And as they started releasing singles from the album, so also, started their rise to fame. The third single on the album, Dream On, is arguably their most successful song ever, but definitely played an essential role in their rise to fame. First, by being successful as the third single of their debut album, but also as it was re-released in 1975. Where in 1973 it reached a mere 59th place in the Billboard top 100, it's re-release reached the 6th spot and helped re-engage audiences with their second and third albums. Dream On was written by Steven Tyler. He had been playing with the chord progression, which he says he got from his father playing him classical music as a kid, since he was about 18. He had never dreamt that it would turn into an actual song. But in a fitting case of contraries, it did not only turn into

their greatest hit, but it was a song about dreaming until your dreams come true. Tyler is quoted to say that it was the only song on their debut album that he used his actual voice. In other songs he tried to sound like other artists with lower voices, such as James Brown. But Dream On was the setup to many of Tyler's signature screams.

Dream On has been a staple in Aerosmith setlists for years. One of their most notable performances includes Tyler playing the piano introduction and first verse on top of the Green Monster at Fenway Park in Boston, before the band joining in to finish the song. But Dream On has also been a staple in other artist's performances. Artists like Ronnie James Dio, Anastacia and Train have taken a swing at the song and more notably, it was featured in Eminem's Sing for the Moment. Here Steven Tyler's vocals are used for the chorus, as well as Joe Perry playing the guitar solo in the song's outro. It is commonly seen as one of Eminem's most meaningful songs, as he raps about the meaning of his music in response to critics who claimed he was promoting violence to his listeners.

Aerosmith is one of the biggest bands to have ever walked the planet. They've broken up, gotten back together, they've had all kinds of feuds within the band, but let's consider their legacy. They've put out 15 studio records. They have been on all sorts of shows and movies, including Wayne's World 2, the Simpsons and Saturday Night Live. They were the first band to have their very own version of the immensely popular video game Guitar Hero. (I own this for my Wii, it's awesome!) And all of it started with 5 guys dreaming of becoming rock stars. 'Dream on, dream on, dream on, dream until your dreams come true.'







NIGHTMARES AND THEIR MEANING

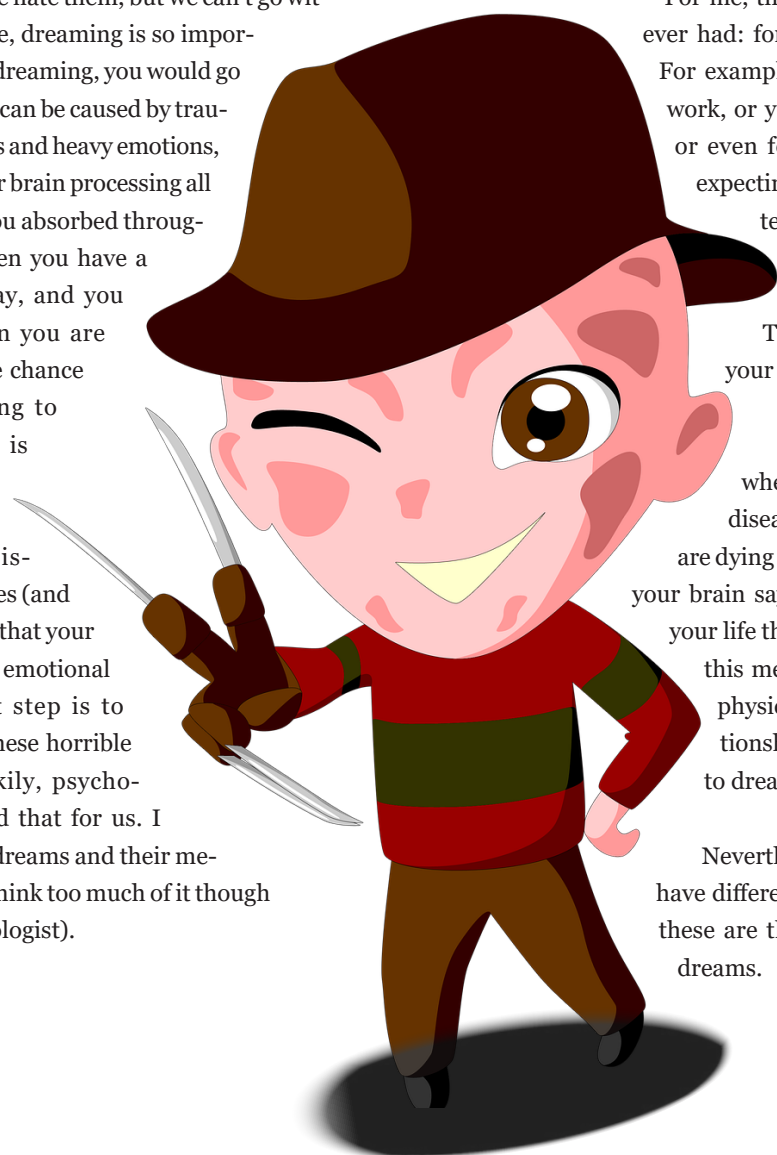


By Roos Slijfer

On a quiet night, where the only sound you hear is from the wind blowing through the leaves and the soft tingling sound of the windchime outside, the best dream comes into your mind. You are feeling really good, walking through the woods with all the sweet forest creatures greeting you. You see a deer jumping through the trees, and you think to yourself: what a wonderful life. You are walking down the path, and suddenly you notice someone or something walking behind you. You hear tapping in the same pace of your walking. You try to look behind you, but you can't see who or what it is. So you try to walk faster and you here the tapping going faster as well. You try to run, but it seems like you can't go forward. You try so hard, and the tapping comes closer and closer until... you wake up.

Nightmares, we hate them, but we can't go without them. You see, dreaming is so important that, without dreaming, you would go crazy. Nightmares can be caused by traumatic events, stress and heavy emotions, because this is your brain processing all the information you absorbed throughout the day. When you have a super stressful day, and you are stressed when you are going to sleep, the chance that you are going to have bad dreams is pretty high.

So, we established that nightmares (and dreams) are a way that your brain can process emotional events. The next step is to give meaning to these horrible nightmares. Luckily, psychologists already did that for us. I found a couple of dreams and their meanings, but don't think too much of it though (I am not a psychologist).



When you are dreaming about death or a funeral, perhaps that of a close friend, then you are probably struggling with some kind of change. It doesn't necessarily have something to do with that person you are dreaming of, but rather a trait that you both share. If there aren't any changes in your life happening, then it could be that the relationship you have with that person is changing.

I think we all had this dream once: failing a test. So, this dream does not necessarily have anything to do with school or this test that is coming up. Dreaming about failing a test can be symbolic of something that you didn't do right in your social life. Or that someone or something is testing your patience. Nonetheless, it could just be that you are very nervous about that test that you have.

For me, this is the most terrifying dream that I ever had: forgetting something really important. For example, you forget that you have to go to work, or you forget to go to a mandatory class, or even forgetting your phone when you are expecting a really important call. This dream tells you that you have too much going on in your life. You should probably consider calming your life down a bit. Take it easy, and life will get better (and your dreams).

The last dream I want to talk about is when you dream about having a terminal disease. When you are dreaming that you are dying from cancer, for example, it is actually your brain saying that there is something toxic in your life that needs to heal. It is easier to picture this mentally or psychologically wound as a physical wound. So, when you are in a relationship that is not 'healthy' you can begin to dream about having a terminal disease.

Nevertheless, don't be scared; a person can have different meanings to different dreams. But these are the most common meanings to these dreams.

SLEEP PARALYSIS FACING OUR DEMONS



By Juultje Eenink

Let's just get it out there: I am a pussy. I tend to get afraid easily and my curiosity doesn't really help with this, because I tend to investigate the things that scare me a lot too. It's like a car crash happening: You don't want to see it, but you just cannot look away. This often puts me in difficult situations, and a while ago it caused the following: I was afraid to sleep.

Not a regular night of sleep, of course. Oh, what I would do for a good night's rest! (Except of course keeping myself to a healthy schedule, no caffeine after five and no screens two hours before bed – don't be ridiculous now.) I had been researching lucid dreaming, a cool concept, being able to do literally anything your little heart desires, while also getting the full eight hours of shut-eye. However, while researching this a certain term kept coming back... *Sleep paralysis*... "Lucid dreaming may occur with sleep paralysis, which can be brief yet terrifying." Naively I thought to myself: how terrifying can it be? Very.

Don't proceed reading if you value your sleep.



Of course, there's the concept itself which can be, to say the least, disturbing. The mildest hallucination I heard about was described as a gigantic ladybug crawling towards the person. Honestly, this sounds quite amusing, until you realize you cannot escape this creature, you cannot move, you cannot even speak let alone cry for help. It's just you and the giant ladybug. And it's not even a fair fight, it can do with you whatever it wants. Now, I assume ladybugs don't have very dark desires, although you never know, but some other demons that people experience in this paralyzed state are a lot more frightening.

I used the word experience because during sleep paralysis you cannot just have visual hallucinations, you can also hear things and even feel them. One specific type of hallucination is that of an

Incubus, a type of male demon that sits on your chest and makes it nearly impossible for you to breathe. This is a hallucination that is experienced by a lot of people from all throughout the world and time. In fact, it is so much of a frequent occurrence that it has earned a different name in many languages. The Italians call it a Pandafeche, the Comodians call it a "ghost who pushes you down" and the Egyptians have always referred to it as a Jinn. The attack of this Jinn can even be deadly, according to them. The Old English word for this demon was Mare, and is believed to be the origin of the word we all use to this day to describe an unpleasant night-time experience, a nightmare.

You may think that people experience the same creatures because they have heard about the creature before. But even different, separated cultures and people have described the demons of their paralysis in a similar way. Another example of this is a Shadow Person. This is also represented in many old tales and folklore and is experienced during sleep paralysis as a shadow or indistinct shape that approaches you. The scientific explanation for this phenomenon is that it might be caused by sleep deprivation, but there are many alternatives. Of course, there are stories about them being ghosts, evil or not, but the one I found most striking is the one claiming those shadow persons are actually inhabitants of a different dimension or a different universe. Some people have also described these beings as flickering in and out of their peripheral vision, even when being awake.

If I had just read about sleeping paralysis in the way it is described scientifically, a sleeping disorder in which the REM-stage of sleep overlaps the waking stage of sleep, it would have made sense. During the REM-stage dreaming and paralysis co-occur so you don't act out those dreams and if this overlaps a waking stage this would cause you to be awake while still being paralyzed and dreaming. You'd of course get scared and this might trigger some creepy hallucinations. It makes sense, right? Right. But how is it possible that all of those people, who haven't even heard of this phenomenon, all experience the same demons? And even more frightening, why does the description of the Shadow Person match those figures I saw every night while brushing my teeth as a kid?

I don't think we will ever know...

PSA

If you are afraid of sleep paralysis after reading this: it helps to not sleep on your back and if you do experience it focus really hard on moving a finger or toe, this will most likely get you out of it.

FAKE IT 'TILL YOU MAKE IT

DREAMS EDITION



'Sweet dreams are made of this, who am I to disagree?'. This hit from 1983 is all about dreams and the fulfillment you get from them. Not the typical dreams. Not those dreams where you repeatedly fall and wake up or those dreams where you blink for a second and the next thing you know you're naked in a room full of people. I'm talking about dreams that keep you going. Those dreams that you dream while you're awake. Every one of us has one. But what is your dream and how are you willing to achieve it?

Is your dream to be successful, get rich, build a career, have a family or have your own star on Hollywood boulevard? Most people who have achieved their goals, will tell you that consistency is key. In order to be consistent you need to have enough motivation. A strong, compelling motivation. New year's resolutions are a good example of how most of us fail to achieve the goals they make at the beginning of each year because they're not motivated enough.

Biologically speaking, we feel motivated because of specific neurotransmitters in specific brain regions, like the nucleus accumbens, which switches our reward system on. Switching reward systems on feels really satisfying and therefore you'll have a "reason" to do that specific thing to feel satisfied again; motivation to do something. In lifeline 58, themed pleasure, I discussed the reward system extensively in case you're interested in learning more about the reward system. While biologists like to think of motivation as a (positive) feedback loop consisting of neurotransmitters and reward systems, psychologists have another say about motivation. The world of psychology is full of theories about motivation, but they can all be broken down into three main theories: instincts, drives and needs and arousal level. The instinct theory states that we're programmed evolutionary and genetically to do specific things that are important

for the organism's survival, like fear and cleanliness. The drives and needs theory addresses all the biological and emotional needs that motivates people to act in a certain way. People try unconsciously to maintain their optimal arousal levels in check. Here, arousal levels are used in a non-sexual sense. People are motivated to engage in behaviors to avoid boredom, but without being overstimulated and stressed. So just the right amount of aroused to be "alive" and productive. The optimal level of arousal differs from person to person, that's why reading a book is enough "arousal" for some people, while adrenaline junkies get aroused by a whole another level of stimulations.

You might now think what those theories have to do with you achieving your goals and dreams. Well, many motivations are intrinsic; they come from within. However, we're also motivated by our surroundings: extrinsic motivation. Money, peer pressure, compliments, honor, love and affection are examples of extrinsic motivation. Studies have shown that extrinsic motivation can set us to act in a certain way, but it doesn't have a long-lasting effect on us if it's not from within. On the contrary, having an extrinsic motivation may hamper creative thinking and problem-solving capabilities.

Luckily, I've got you covered, and I know the secret to slay those goals and I'm about to share it with you. Ready? 1, 2, 3, okay, just ask yourself what your intrinsic motivation is or what you really like. Do you think that you should exercise more because everyone is doing it? Don't torture yourself in the gym lifting those weights, but try something that you really love doing, like dancing or jogging. That's how you'll stay motivated longer and get your dream summer body right on time before summer. Or your dream job or dream life or whatever you're dreaming of.



PLEASE, DO TRY THIS AT HOME

Lava Lamp



By Prof. MD

EXPERIMENTS TO TRY AT HOME!
BETTER SAFE THAN SORRY, WEAR PROTECTIVE GEAR!

As a world famous prof. MD I feel a lot of pressure to deliver sweet lifeline articles. Therefore getting sleep and having some sweet dreams is very hard for me. I need some extra time to relax and chill. I know what you are thinking:
YOU SHOULD GET A SWEET LAVA LAMP.

Lava lamps are the best lamps ever, no discussion. But since Intertoys, Bart Smit and Toys 'R' Us have gone bankrupt we need another way to get a lava lamp. So why not make it into an EXPERIMENT TO TRY AT HOME XD (<-- look, a fun smiley).

So what do you need to get?

- A bottle, glass or plastic (I used an old wine bottle)
- Oil, the supermarket stuff but not the frying fat stuff
- Still/tap water
- Colorant, in any type of colour you prefer

Extra: small glitter stuff

- Alka-Seltzer effervescent tablet, you can find that at a normal drugstore like Kruidvat. Alka-Seltzer is also an aspirin, so it could be really nice to make a lava lamp when you have a hangover.
- Lamp, I bought a small bike lamp so it can fit underneath the bottle and the bottle will not fall over.

How to do it:

1. Empty your bottle but throw away the leftover wine or drink it like a real woman.
2. Fill the bottle for 80% with oil and for 20% with water. Do not fill it up till the top but leave some air in it.
3. Put the colorant in it, only a few drops will be enough. EXTRA: mix the glitter with the colorant to have sparkly lava lamp.
4. Wait until the water and colorant is fully mixed, you can carefully swirl it (zwenken in Dutch) to try and hurry it up. Also wait until the water and oil are completely segregated.
5. Grab your Alka-Seltzer and break it into small pieces.
6. Put the lamp underneath the bottle and turn off the lights in the room.
7. Put the small Alka-Seltzer pieces one for one into the bottle. See how your lava lamp starts to fizz and get it's ultimate form.

(If you put a lot of Alka-Seltzer into the bottle it will overflow, just so you know.)

8. Enjoy and relax bro!



In this experiment the Alka-Seltzer is your on/off button. So you need to wait until the oil and water are completely divided again in the lava lamp for the best effect.

For bigger bubbles my practical assistants and I would say to use a small ventilator and build in into the lava lamp.

This was really nice to do and gave a lot of satisfaction. It's very easy to do and it will only take half an hour of your time. Afterwards we all got some sweet dreams.

The lava lamp made by the Lifeline resides at the hok, if you're interested in checking it out yourself!

A CHAT WITH...

Prof. Dr. Jan Komdeur

By Dana Frank



In an office where the bookshelf had collapsed over itself and its contents were no longer obtainable, I had a chat with Jan Komdeur. After some time, struggling to find the books he wanted to show me, he settled for providing the titles of his literary creations. If you're an ecological enthusiast like me, check them out!

When were you born? Where?

I was born in Stadskanaal in 1959. When I was 11, I moved to Ede, but I always knew I wanted to move back north.

Where did you do your undergraduate study? How was it?

I left home at 18 to go study in Wageningen. When I started my first year, I felt it was just a continuation of high school. We had chemistry, physics, mathematics throughout the week, and only a couple days of biology. But in my second year, I enjoyed it more and became even more motivated.

What about your postgrad?

My study in Wageningen was always really applied, and I also wanted to do more fundamental work. I did part of my master's in Groningen, and it was during my time here that I became more interested in ecology. One day, after I started a Ph.D. in Wageningen, I saw an ad from Birdlife International about a position, which would take place in the Seychelles. I really wanted to do it, so I married my girlfriend to get her a resident's permit, and then we left together.

How was your time there? What did you do?

I wanted to study a bird that hadn't been studied before, so I chose the Seychelles warbler, whose world population was then entirely confined to the small island of Cousin (only 29 hectares). I liked it because if you follow all the individuals on the island, you don't have to do statistics, and you come up with extremely nice ideas and answers about the evolution of social behaviour, and tolerating others in your territory. What's funny is that when I got the position, I had no clue where the Seychelles were. When I finally went to the bookstore and opened a map to find it, I was really disappointed to find it at the equator, because I always thought I would hate the climate. In the end, though, I loved it. My wife and I were the only people on the island. We lived in a small shed, and we were the only ones, other than the sea turtles, giant tortoises and millions of seabirds nesting there, to leave footprints on the beach.

First publication?

I published my data in Nature, got a lot of self-confidence from that.

Why did you choose academia?

I wanted to have interactions with students, and I loved teaching. But for me, I also really prefer fundamental research. I do think applied research is extremely important, and I also do a lot of it myself, but the combination of both is vital.

Overall, I like the atmosphere of academia. Science is fun, it should be fun, even if it is also nerve-racking at times.

How is your life affected by academia?

In science, you never know where you'll end up. If you have a partner, it's difficult because it is important that the two of you have a job and be happy too. We moved around a lot, and when we moved back from Australia to the Netherlands, I had to promise my wife that I would stay here for at least the next 10 years.

How did you know you were an ecologist?

I recall when I was around 7 years of age once seeing a starling pair copulating, and then soon after, seeing the same female with another male. Why? Why swap partners. How animals behaved always intrigued me. I liked biology before I knew the word for it.

What is your favorite animal?

Blackbird. I slept under the attic as a child, and I loved hearing them sing

Favourite plant? Do you keep a lot of house plants?

It's called lesser celandine in English; it comes in the spring as when I start seeing even the leaves, it makes me happy, heralding the spring. That's also when the blackbirds start singing.

What do you like to do when you're not working?

About twice a week, I go race biking with a friend. Every now and then a long-distance prologue (up till 175 km) I live in a small place 18km from here, and I usually bike to work.

Favorite food?

When I go cycling with my friend, we like to make toasties with lots of chili sauce afterward. I really like that.

Komdeur's books:

Taborsky M, Cant M, Komdeur J (2019). The Evolution of Social Behaviour. CUP, UK.

Székely T, Moore AJ, Komdeur J (eds) (2010). Social Behaviour: Genes, Ecology and Evolution. CUP, UK.



CURSE OF SLEEP

NARCOLEPSY



By Gabriel Nicolas

I'm sure a lot of students have experienced sleeping in class at least once. Some would point fingers at the immense amounts of assignments eating through their sleeping hours, others may have to keep their late night activities a secret, whether they may be parties filled with fermented beverages or digital adventures with friends from various countries.



If these appear relatable to you then you are in luck. All you need to cure the seemingly tiring days is a sense of self control during the night and at least 7 hours of sleep to eliminate that dreadful drowsiness in your daily life. Unfortunately, not everyone is created equally for some people may have a neurological disorder known as Narcolepsy.

Narcolepsy is a neurological disorder with one of the causes being a mutation in certain genes responsible for the synthesis of hypocretin receptors - hypocretin are neuropeptides essential for regulating sleep cycle, food intake and pleasure-seeking behaviours. Causes of these mutations are generally inherited and the mutations themselves are recessive, though recent studies have shown that there are associations of having Narcolepsy caused by heavy metals, insecticides and infections from streptococcal and H1N1. Autoimmune diseases may also target these receptors which are also a common cause of Narcolepsy.

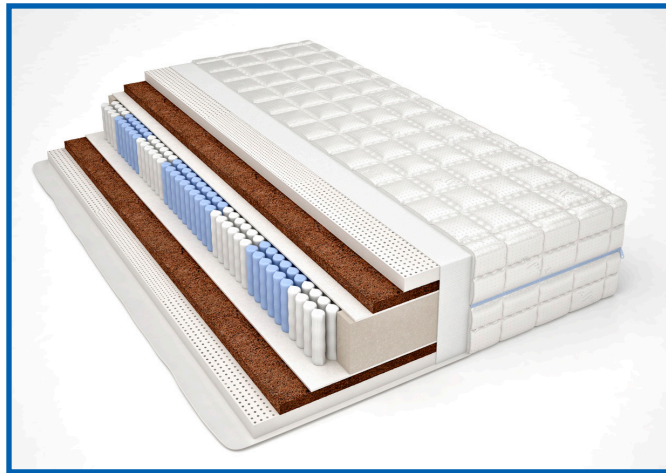
People lacking these receptors would rarely to even never feel properly rested after a healthy 8 hours of sleep and would have intense urges to sleep in broad daylight and in front of strict professors. Some may also have an accompanying illness, cataplexy, a condition where the muscle strength deteriorates temporarily, and a few others may also experience vivid hallucinations or sleep paralysis. A proper diagnosis is typically based on the symptoms and sleep studies, after confirming that the drowsiness is not caused by other disorders such as sleep apnea, actual depression, anaemia, etc.

There are treatments for this condition such as taking regular naps during the day or taking prescribed medications for Narcolepsy, though unfortunately, there are no known cures for this complication. Nevertheless, it is unlikely for you to have this disorder since it is a rare neurological disorder and affects only 0.05% of the population. Therefore, assuming that you aren't included in the 0.05% of the population affected by the disorder, try to stop being lazy in class, fix your sleeping habits and be grateful by the fact that you are indeed just avoiding your studies by sleeping in classes and not due to a condition.



DREAMING OF MORE

Disclaimer: Although the IKEA in Groningen was gracious enough to let us review their mattresses, they did not allow us to take pictures to use in this article.



In a Lifeline all about dreams, it is only natural we review something that will help you enhance your dreaming experience. Now, before you get the wrong idea, we at Lifeline don't condone the use of hallucinogenic compounds, we do support you getting a good night's sleep. And what will help your sleep better than a nice, comfy mattress? For this review, we were lucky to be allowed to go into our local Ikea and test out a nice selection of their mattresses. We chose to test mattresses from each price range as well as a harder or softer mattress for each price range. These were the mattresses we reviewed:

Our panel of 8 experts reviewed each mattress. Now, although most of us were wearing comfortable clothes, none of us was smart enough to go to Ikea in our pajamas, so our judgement might have been different in our most comfortable sleeping gear. Now, on to the review.

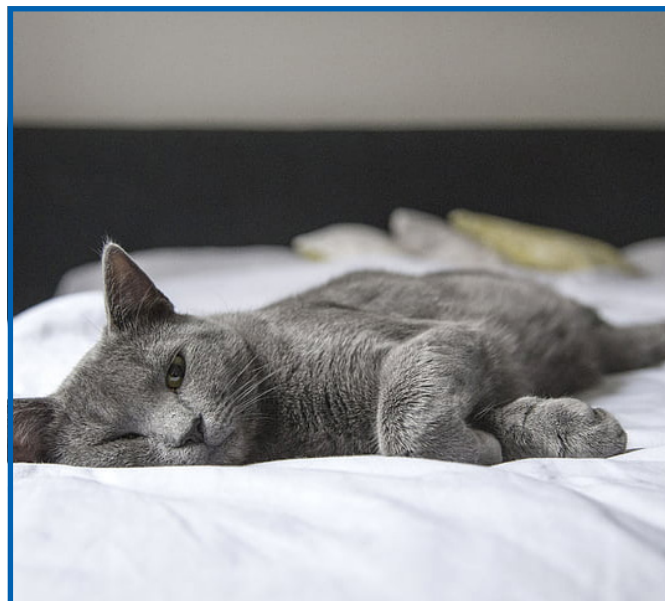


MALFORS

First up was the soft mattress in our cheaper category. Overall the Malfors got a pass, but most of the committee would probably pass on it. Half of our panel of mattress experts gave it a 5, while Hennie surprisingly gave it a whopping 8,5, stating she wouldn't even need a spinning wheel to fall asleep on this one.

MOSHULT

Second, and by far the worst was the Moshult. It was the cheapest of all the mattresses we tested, and boy was that noticeable. Overall it scored a 3,6 and of all our panelmembers, only Marit gave it a passing grade, and that was only a 5,6. Her comments said: 'Too thin, but not too bad. I could survive a night on this mattress.' Nadia, who gave this mattress a 1, said: 'Don't buy this, it's not comfortable at all. It's not even good enough for sex.'



MORDEGAL

Third was perhaps the biggest surprise of our test. The Mordegall was one of the cheaper models we tested, although we would categorize it as midway priced, but scored as one of the highest ones! Both Marit and Nico gave it their highest grade in the entire test. Nico said: 'Spine feels fully supported and relaxed, almost like you're levitating.' Dana, who wasn't a fan of this one said: 'May as well sleep on the floor.'

MATRAND

Next up was the Matrand. It scored very well overall, although Marit was not a fan of this one, 'Too soft, no!', while Dana was a big fan: 'It's a good one because I like it the best.' After it was all said and done, Matrand did very well with an average score of 7,5.

COMFORTABLE DREAMING

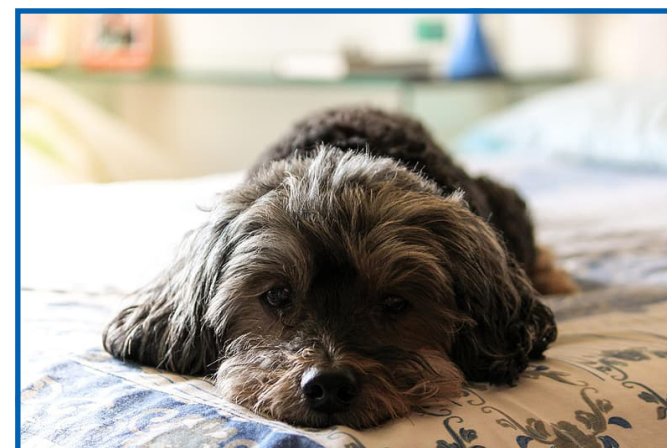


By Devi Seijkens



HIDRASUND

The scores this mattress got were amazing. Although one stick in the mud (Marit) 'only' gave it a 7,5, every other panelmember gave this mattress a 9 or higher! Some of the quotes about this bad boy: 'Not nice to move around on, but I don't want to move anymore...' 'Feels like heaven.' 'The best without question.' This mattress might take you even higher than the clouds it was made of with its 9,1 average score.



MAUSUND

The score for this one also came as a bit of a surprise. Where the most expensive mattress easily won the best comfort score, it's slightly cheaper counterpart did a lot less well, scoring only a passing grade in 5/8 scores. Meiske: 'This is heaven, so soft but still firm enough.' Nadia: 'Not worth the money, seriously, buy another one.' With a 6,5 average score it scores on the low end of the middle of the pack.

Name	Firmness	Price(€)
Hidrasund	Firm	499.-
Mausund	Soft	399.-
Matrand	Soft	199.-
Mordegal	Firm	129.-
Malfors	Soft	79.95
Moshult	Firm	59.95



Name	Score
Hidrasund	9.1
Mordegal	8.3
Matrand	7.5
Mausund	6.5
Malfors	6.0
Moshult	3.6

CONCLUSIONS

Based on our findings, you're best off buying either the Mordegall or Hidrasund mattresses. While Hidrasund scored the higher overall by almost an entire point, we must take into consideration that for the price of one Hidrasund, you can buy three Mordegalls. Considering the fact that we're all students with a low budget, I think most of us would go out to buy the Mordegall. But if you're someone with money to burn and a passion for Swedish furniture, by all means, go ahead and get yourself heaven in a mattress in the form of the Hidrasund. Furthermore, people will look at you weirdly when you visit Ikea with ~10 people to test out their mattresses, so be happy we did that for you.

BAS EN Z'N BEESTJES

Beasts by Bas



By Bas van Boekholt



In these past 6 years I have covered quite some weird beasts. Their weirdness came from behaviour, physiology or simply appearance. However, there is one thing all these beasts had in common: when discovered, people didn't question their authenticity (this is of course with the exception of my mythological edition 2 years ago). The animal of this edition does not have that credit. This animal has hoax written all over it. It violates one of the basic rules of mammality and looks like an animal version of the monster of Frankenstein. Even linguistics don't know how to deal with him as it has four accepted plural forms. Bas en zijn beastjes animal of this edition are the Platypuses/Platypus/Platypi/Platypodes!

The platypus (*Ornithorhynchus anatinus*) is a semi-aquatic mammal living on the eastern side of Australia. Together with the four species of echidna it is part of the order of monotremes, which are egg-laying mammals. It was discovered in 1798 by captain Jack Hunter. When he sent the pelt and his description to European scientists, they immediately rejected the animal as being real. According to them it was a foul joke of an Asian taxidermist who had sewn several animals together. Naturalist George Shaw even took up some scissors to check for stitches around the bill. Interest peaked in the animal after it was found to be real. However, its egg-laying abilities were discovered more than 100 years later. Next to this, platypus are also venomous. In a hollow spur on each hind leg platypus carry enough venom to kill a small dog. However, because the venom is there only in mating season, it is theorized that it is only used to fend off other males.

Even though platypuses are born in eggs, they are still mammals. This means that the young are fed breastmilk at young age. Usually this is done through the nipples of the mother but not for these furry critters. Female platypi produce their milk in mammary gland ducts hidden in the abdomen where it collects

in grooves in their skin. Baby platypodes drink it up by sucking it out the folds of their mother's skin, or her fur. But nipples are not the only thing missing on a platypus. They also have no stomach or teeth. While having no stomach does not pose any insurmountable challenges to the platypus diet, having no teeth does. Luckily, they found a workaround, also sometimes used to similar mouthed animals: birds. When they scoop a mouthful of lushly worms and insects, they simultaneously pick some gravel up as well. With the food and gravel in its cheek pouches it munches away using the gravel as makeshift teeth.

When hunting under water the platypus face one problem. They have to close their eyes, ears and nose rendering it practically useless if it wasn't for his bill. The outside of the bill is lined with electroreceptors that can detect changing electrical fields in the water. While common in sharks this electrolocation is very rare in mammals. Only the echidna's and some dolphins have this ability, of which the platypus is the most sensitive. Next to the impressive bill they have an impressive tail. While it does look similar to a beaver's tail it is used in totally different circumstances. A beaver uses its tail to navigate under water and warn others by slapping water. The most common use of the tail in platypi is as a fat reserve making it similar to the humps of a camel. Female platypus also use it to keep incubating eggs against her warm body.

As you can see platypodes are fascinating creatures. They are the exception of the exception and therefore do not belong anywhere, or that maybe makes them belong just everywhere. Even their feet have adapted to this duality. In the water webbing between the toes makes them agile and fast while on land they retract the webs to show some fearsome claws. Platypuses represent the diversity of the mammals all in one animal. They are the thing that can even make the most experienced biologist feel surprised. Being able to do that, makes them an excellent addition to my hall of fame.



BEAUTY AND BRAINS



WAT GA JIJ DOEN?
JOIN-SEEDVALLEY.NL



IDUZZLE...



By Juultje



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hint: plural

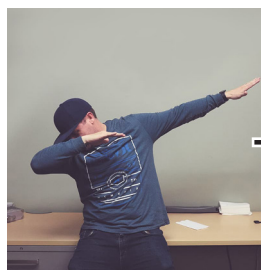


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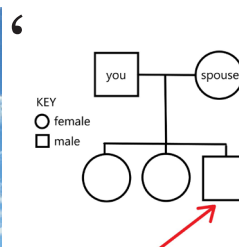


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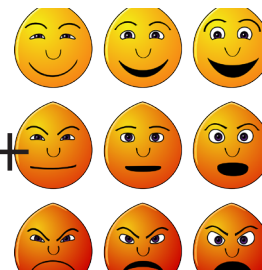
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The previous Iduzzle was won by **Naomi Hoogerhuis**. Congratulations! She has won a marvelous prize, which she is very happy with! Would you like to be mentioned here in the next Lifeline? Please submit your answer to the Iduzzle to redactie@idun.nl before May 26th.

Answer to iduzzle 58: The aim of the wise is not to secure pleasure, but to avoid pain.