The theory of Geomagnetic field effect on Bipolar patients

A survey of the state of the art and case study

July 25, 2024

By Alejandro Avella

To: My Gordis for navigating the ups and downs of my Bipolar Disorder I

Table of Contents

Inspirational Quotes **3**
Introduction **3**
What is Bipolar Disorder? 4
My recommendations on how to control Bipolar Disorder in addition of medications 7
Experiment Shows Human Brains Can Detect Earth's Magnetic Field **9**
How does a biological geomagnetic sense work? 9
A pythonic model of memory in the brain **10**
The theory of Geomagnetic field effect on Bipolar patients **11**
Space Vector Three Phase Negative Sequence **12**
Hypothesis 14
Understanding Three-Phase Systems 14
Unbalanced and Distorted Conditions 14
Negative Sequence Component 14
Space Vector Representation 15
Identifying Negative Sequence with Space Vectors 15
Impact of Negative Sequence 15
Conclusion 16
Space Vector 16
Negative Sequence of Three-Phase Variables 17
Space Vector of Positive-Sequence Variables 17
State of the art for conventional medicine **18**
Antidepressants enter cells, organelles and membranes 18
Bipolar Disorder Medications that control Alejandro Avella's manic episodes 19
Zyprexa (Olanzapine) 19
Depakote (Valproic Acid) 21
Ambien (Zolpidem) 21
Lorazepman 22
New Dopamine partial agonists in Development 23
Gene AKAP11 24
State of the Art for non-conventional treatments **24**

Effect of music on bipolar patients 24
Reinventing the Body, Resurrecting the Soul: How to Creating a new you 24
Body and mind hygiene 25
Take care of sleep 26
Take care of your mind 26
Dave Scott - 6-time Ironman Triathlon Worldwide champion 28
Sleep Cycle 29
Laugh, take care of yourself, live longer and keep exploring 30
Laugh 31
Care 31
Live Longer 31
Keep Exploring 31
The body screams, what the mouth shout 32
Alpha Brain Waves 33
Aromatherapy 34
Massages 35
Acupuncture 35
Taichi 37
Feng shui 38
Vastu 39
Tarot Cards 40
Case Study - Alejandro Avella 41
My doctors 41
Bruce Wermuth, M.D. 41
William Wenokor, M.D. 41
Manuel Ortega, M.D. 42
Alejandro Avella's manic episode on July 2024 42
Medications 42
Other information 42
Recent events 43
Episode Observations 43
Sleep Graphs 45
Weight graphs 46
Heart Rate graphs 47
A sample bad night of sleep 47
A sample good night of sleep 48
Further study 49

Inspirational Quotes

“Believe, even if you don’t see it, you already see what electricity does and you don’t see it” — Alejandro Avella, March 2019

“Everything we do and think, no matter how small or insignificant we think it is, has a ripple effect on the universe. It is pretty wild (and funny) that we think we can understand it all.” — Gladys Boza, July 2024

“And there, in a nutshell, was the Boulder brand of happiness: a community of fit, successful, mission-driven people with a clear vision of the good life, even if they don't completely live it yet. Pleasure, purpose, pride-the three strands of happiness.” — The World’s Happiest places - National Geographic, Nov 2017

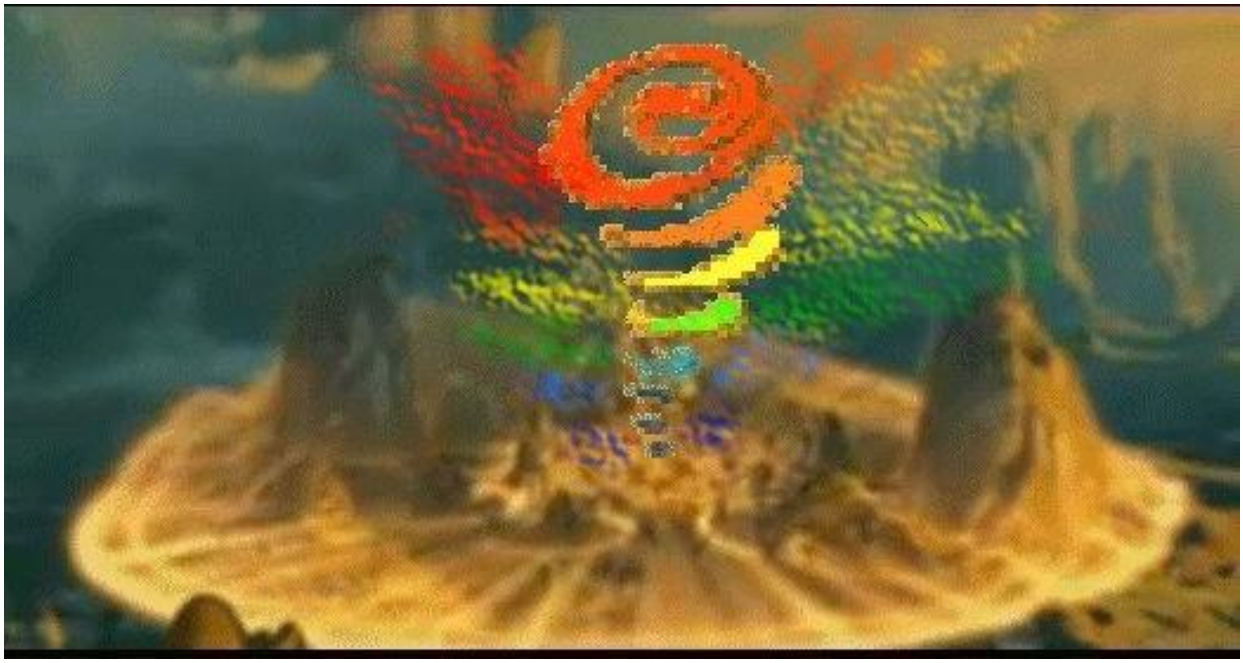
"The most beautiful experience we can have is the mysterious. It is the fundamental emotion that stands at the cradle of true art and true science. Whoever does not know it and can no longer wonder, no longer marvel, is as good as dead, and his eyes are dimmed. It was the experience of mystery -- even if mixed with fear -- that engendered religion. A knowledge of the existence of something we cannot penetrate, our perceptions of the profoundest reason and the most radiant beauty, which only in their most primitive forms are accessible to our minds: it is this knowledge and this emotion that constitute true religiosity. In this sense, and only this sense, I am a deeply religious man... I am satisfied with the mystery of life's eternity and with a knowledge, a sense, of the marvelous structure of existence -- as well as the humble attempt to understand even a tiny portion of the Reason that manifests itself in nature." – A. Einstein (1879-1955)

Introduction

I have been battling with Bipolar Disorder I since I was diagnosed with it in January 1995 (almost 30 years ago). For the most part, I have been a healthy individual. I had Hepatitis A in the last quarter of 1993, I had colon abscess in 1995 and 3 herniated

discs in 2022. I have had about 12 manic episodes in that time of which 2 of them required hospitalization. Sometimes I had mild depression following the manic episodes. I was lucky that by trial and error of many medicines my doctors found a combination of medicines that work for me: Zyprexa, Depakote, Lorazepam and Ambien. See section on medications. At this point, not sure what comes first: bad sleep followed by a manic episode or a manic episode followed by bad sleep. In my case, when I have racing thoughts: My mind feels like a “Colorful Tornado”. When my mind is disorganized it is ***terrible***, when controlled I feel “Joy”.

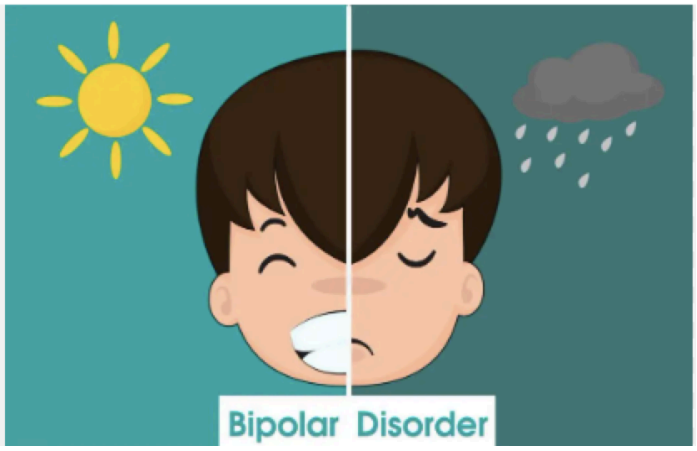
“Flow, in positive psychology, is a state in which a person performing an activity is fully immersed in a feeling of energized focus, deep involvement, and joy.” — Cisco Fellow, David McGrew, August 12, 2022



What is Bipolar Disorder?

So, what is this sickness that we call Bipolar Disorder? It is a sickness of the brain in which patients tend to feel more than the average person. It doesn’t sound that bad,

right? However, if not controlled can lead to disability or even death. According to studies Bipolar Disorder is the fifth cause of disability in the world[1].



The brain is the most complex part of the human body. Just to give you an idea, it has more than 10 billion neurons interconnected with synapses. And doctors are not clear how that whole system actually works.

Last time I went to the hospital my medication was changed and I was given a whole new treatment, just to see if it would work. Without any blood test or other scientific basis to make sure that the new treatment would work . This is sad! But it is the status of medicine as of July 2024. We can do better than this!

With neurotransmitters flowing in between neurons. Scientists have figured out somehow, that controlling these neurotransmitters, you can actually control the mood of someone. Well, that is the part that is still unknown. How in the world can something chemical in the brain actually control a cognitive function of the mind?

[1] Ferrari, A. J. et al. The prevalence and burden of bipolar disorder: findings from the Global Burden of Disease Study 2013. Bipolar Disord. 18, 440–450 (2016).

Now, I think there is still hope that someone will figure this out. For examples, check the Optogenetics work at Stanford University by Deisseroth team[2] and the advances done by the Allen Institute for the brain in Seattle, WA[3].

Now, I can speak from my only experience, for dealing with this sickness for more than 30 years and thankfully being able to control it and have a semi-normal life. I was able to stay married, bring up 2 kids (out of College and currently both working their first jobs) and be able to hold a job that I love. I am thankful to Zyprexa. Whoever invented this medicine should probably be considered for a Nobel prize in Chemistry[4].

I have been trying over the years to read as much as I can about bipolar disorder. I would like to first mention the Bipolar Advantage book by Tom Wootton[5]. This book helped remove the social stigma that I had about my condition and actually think that I could have a creative advantage with this problem. Then, I took a Coursera CalTech course on Drugs and the Brain (Henry Lester[6] has a better understanding of what's going on, but seems too focused on Biochemistry). Finally, I bought a book on Molecular Neuropharmacology[7]. Another good resource is Stahl Online from Cambridge University Press[8].

---

[2] https://web.stanford.edu/group/dlab/

[3] https://alleninstitute.org/

[4] https://en.wikipedia.org/wiki/Olanzapine

[5] The Bipolar Advantage by Tom Wooton

[6] https://www.bbe.caltech.edu/people/henry-a-lester

[7] Molecular Neuropharmacology: A Foundation for Clinical Neuroscience, Third Edition 3rd

[8] https://www.cambridge.org/core/publications/collections/stahl-online

My recommendations on how to control Bipolar Disorder in addition of medications

But enough of that. Now, about my own experience. Here are some tips that I have found help me:

0. ***Gratitude*** is key. Watch this TED talk[9].

1. Sleep is key. If you are having trouble sleeping you are vulnerable.

2. The “argh movement”, followed by “Come back to center”, “Namaste”. I feel that this helps relieve the childhood trauma.

3. For the back pain on the left of the column (parallel). Use icy hot gel and take 2 acetaminophen pills of 500 mg. Also, move your neck in circles.

4. For constipation, take something to flux your system on a daily basis. It is important to feel relieved from your intestine. Prune juice is the key. Otherwise, you are intoxicated.

5. It is important to fart to release the gasses from the intestine before sleep.

6. Music helps to control the brain. I would like to feel the fulfilled expression of Shakira in the song “Mi verdad”. I get better listening to love songs that get to my heart as in this YouTube playlist. I recommend subscribing to the 1-month free trial of YouTube Premium, otherwise the ads will ruin the experience!

7. I have noticed an increase in the need to urinate. This is a problem for having a good night's sleep. Don’t drink anything 2 hours before going to bed.

8. “Calm” app[10] Meditation is excellent. 30 minutes before help really helps.

9. Yoga for beginners: 20 minutes every morning.

10. Need to feel hugs, touches and kisses. Love is key.

11. Temperature too cold, too hot is an issue. Need to control room temperature.

12. Ask your body what it needs?

13. Weight loss is important. Control your Body Mass Index (BMI) to be normal.

14. Golf helps concentrate your thoughts. Everyone should try this sport.

15. Triathlon is great for physical shape and auto improvement. Compete with yourself.

---

[9] https://youtu.be/8lXYZ6s3Dfk

[10] https://play.google.com/store/apps/details?id=com.calm.android&hl=en

16. Swimming for movement of neck left to right.
17. Singing songs that you like helps you feel good. Actually, singing louder is even better.
18. Cry relieves bad things. Need to cry. Just let it flow.
19. Stay hydrated. It is critical at all times
20. Life is good T-shirts and caps are very nice.
21. Need to cover eyes for sleep to be able to cancel light on the room
22. Read a novel. It is important to do silly things.
23. Icy Hot in the prefrontal cortex.
24. Eliminate caffeine. Use Sleepy Time and Chamomile teas from Celestial Seasonings
25. Easy music, delicate to your ears from Juan Gabriel. See all the duos videos in this playlist[11].
26. If you are experiencing grandiose thoughts such as you are the next Jesuscrist or Ala or Bhuda. Watch the mission from Enrio Morricone[12].
27. If you are in bed and experiencing racing thoughts, write them down in a piece of paper. At least the anxiety of losing brilliant thought would be relieved. You can read them later when you are calmed.
28. Watch this movie: "La vida es Bella" (Life is beautiful). Specially this song: Barcarolle.
29. Routine is key and needs to be coordinated with the circadian rhythm. 2 minute plank before taking a shower.
30. Intermittent fasting. Only 2 meals a day. First one at 12 PM and another at around 7:30 PM
31. Aromatherapy: Drakar, Elixir Dior, Egoiste Platinum Channel colognes or anything that makes you feel good.
32. Two vacations a year to a place that is new to you.
33. Drink water if you feel dehydrated when you cannot sleep.

---

[11] https://www.youtube.com/watch?v=sIM4mDQJib4&list=PLVCqK-_NmYmrHr-rydyZ_mU06nNfPBVo-

[12] https://www.youtube.com/watch?v=oag1Dfa1e_E

Experiment Shows Human Brains Can Detect Earth's Magnetic Field

Do human beings have a magnetic sense? Biologists know other animals do. They think it helps creatures including bees, turtles and birds navigate through the world.

Scientists[13] have tried to investigate whether humans belong on the list of magnetically sensitive organisms. For decades, there's been a back-and-forth between positive reports and failures to demonstrate the trait in people, with seemingly endless controversy.

The mixed results in people may be due to the fact that virtually all past studies relied on behavioral decisions from the participants. If human beings do possess a magnetic sense, daily experience suggests that it would be very weak or deeply subconscious.

Such faint impressions could easily be misinterpreted – or just plain missed – when trying to make decisions.

A research group – including a geophysical biologist, a cognitive neuroscientist and a neuroengineer – took another approach. What they found arguably provides the first concrete neuroscientific evidence that humans do have a geomagnetic sense.

How does a biological geomagnetic sense work?

The Earth is surrounded by a magnetic field, generated by the movement of the planet's liquid core. It's why a magnetic compass points north. At Earth's surface, this magnetic field is fairly weak, about 100 times weaker than that of a refrigerator magnet.

---

[13] Transduction of the Geomagnetic Field as Evidenced from alpha-Band Activity in the Human Brain - Shinsuke Shimojo, Gertrude Baltimore Professor of Experimental Psychology, California Institute of Technology; Daw-An Wu, , California Institute of Technology, and Joseph Kirschvink, Nico and Marilyn Van Wingen Professor of Geobiology, California Institute of Technology. - March, 2019 - https://www.eneuro.org/content/eneuro/6/2/ENEURO.0483-18.2019.full.pdf

Over the past 50 years or so, scientists have shown that hundreds of organisms in nearly all branches of the bacterial, protist and animal kingdoms have the ability to detect and respond to this geomagnetic field.

In some animals – such as honey bees – the geomagnetic behavioral responses are as strong as the responses to light, odor or touch. Biologists have identified strong responses in vertebrates ranging from fish, amphibians, reptiles, numerous birds and a diverse variety of mammals including whales, rodents, bats, cows and dogs – the last of which can be trained to find a hidden bar magnet.

In all of these cases, the animals are using the geomagnetic field as components of their homing and navigation abilities, along with other cues like sight, smell and hearing.

Skeptics dismissed early reports of these responses, largely because there didn't seem to be a biophysical mechanism that could translate the Earth's weak geomagnetic field into strong neural signals. This view was dramatically changed by the discovery that living cells have the ability to build nanocrystals of the ferromagnetic mineral magnetite – basically, tiny iron magnets.

Biogenic crystals of magnetite were first seen in the teeth of one group of mollusks, later in bacteria, and then in a variety of other organisms ranging from protists and animals such as insects, fish and mammals, including within tissues of the human brain.

Nevertheless, scientists haven't considered humans to be magnetically sensitive organisms.

A pythonic model of memory in the brain

In the Python programming language a dictionary is a data structure in which data is arranged by key-value pairs. This allows for a very efficient search in which the time complexity is said to be O(1). I think this is how the memories are organized in the brain as well.

Let’s try to understand dictionaries in a better way. First memories in computers are organized in boxes labeled by an index. When a new word needs to be added we use a

hash function like the length of the string, to put the memory in the correct location in the brain. In the case of a collision, two words with the same length we use a linked list and that's why a memory brings another immediately. Figure 1 shows this with Python data structures.

In the case of the brain the hash functions are the senses: sight, hearing, smell, taste and touch resulting in a O(1) retrieval. Very fast, the fastest as a matter of fact.

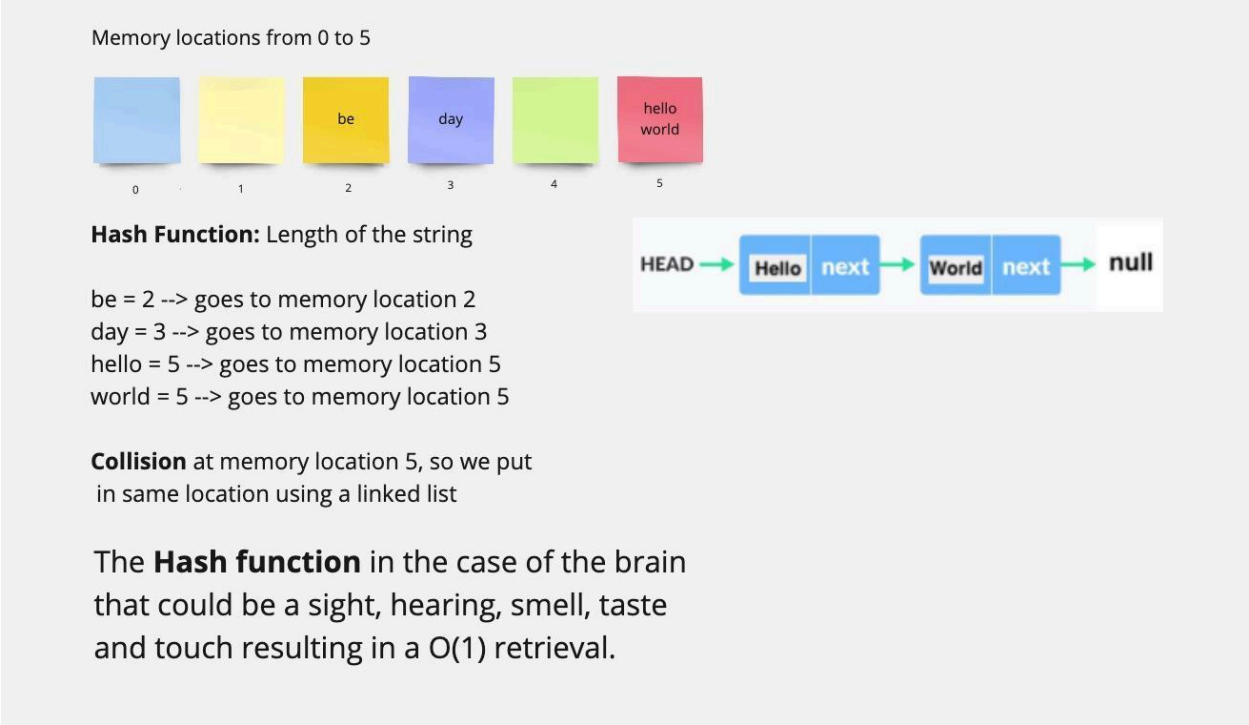
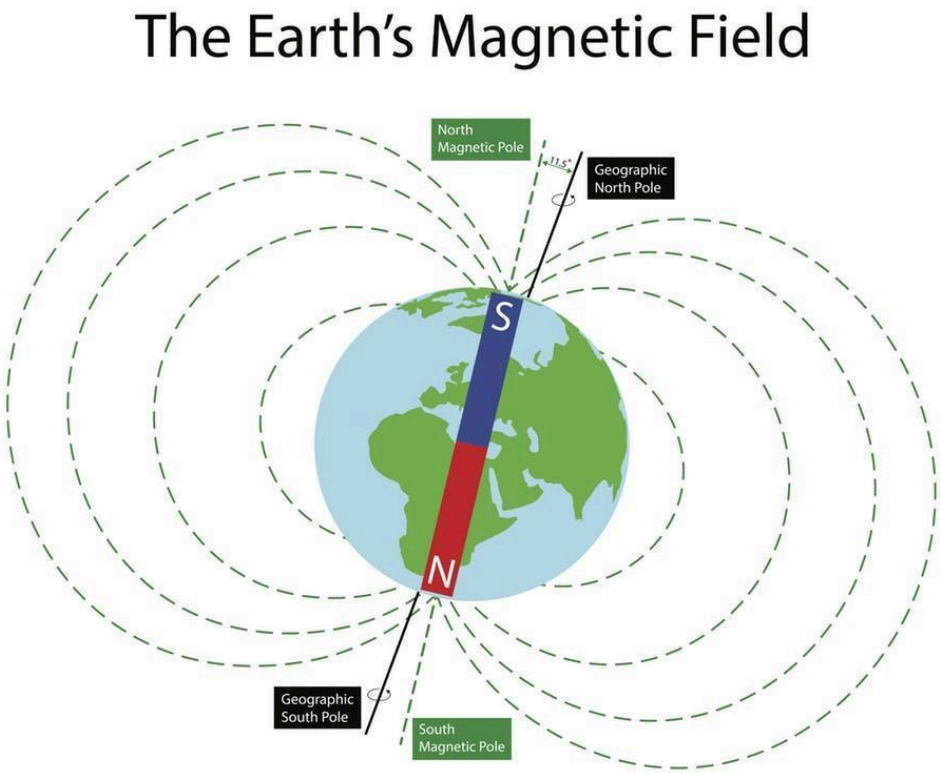


Figure 1 - A pythonic model of memory in the brain

The theory of Geomagnetic field effect on Bipolar patients

I have run out of theories of why I get bipolar manic episodes. At some point, I thought it was work stress, at other point I thought it was the seasons, at some point I thought it had to do with childhood traumas and finally at some point I thought it had to do with genes. This paper proposes that bipolar manic episodes are caused by human beings

feeling the Earth's Magnetic field and [captures some data of my July 2024 manic episode](#).



Source: New evidence for a human magnetic sense that lets your brain detect the Earth's magnetic field[14]

Space Vector Three Phase Negative Sequence

In the world of three-phase electrical systems, the space vector theory offers a powerful tool for analyzing and understanding unbalanced and distorted conditions. Within this context, the concept of the negative sequence component plays a crucial role in identifying and dealing with specific issues.

---

14 https://theconversation.com/new-evidence-for-a-human-magnetic-sense-that-lets-your-brain-detect-the-earths-magnetic-field-113536

An **animation** of the space vector three phase Negative Sequence can be found **here**.

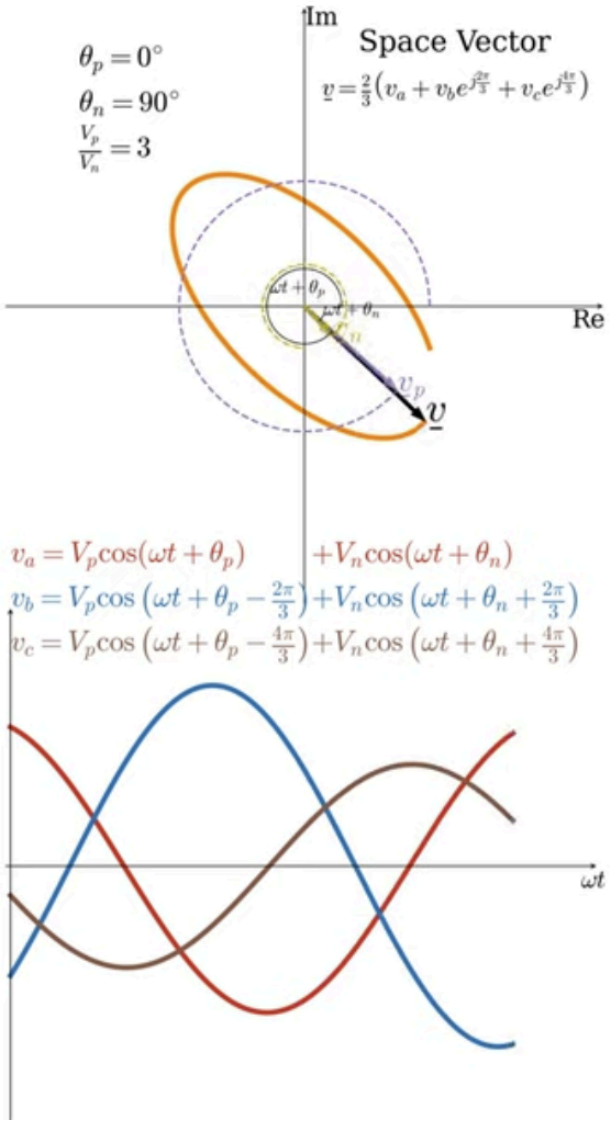


Figure 1 - Space Vector of Three-Phase Variables: Negative Sequence is similar to Earth rotation around the sun and moon rotation around Earth.

Hypothesis

In a Space Vector of Three-Phase Variables the Negative Sequence is similar to Earth rotation around the sun and moon rotation around Earth and the interesting points are places where they align. When there is alignment Bipolar Disorder patients get manic.

Understanding Three-Phase Systems

Three-phase systems are the workhorse of power transmission and distribution. They consist of three AC voltages with the same magnitude but phase-shifted by 120 degrees, delivering efficient power transfer. Ideally, these three phases are balanced, meaning their magnitudes and waveforms are identical.

Unbalanced and Distorted Conditions

However, real-world scenarios can introduce imbalances and distortions into the system. These can arise due to unequal loads on each phase, single-phase faults, or non-linear loads that inject harmonics into the current.

Negative Sequence Component

The negative sequence component is a mathematical concept used to represent the portion of an unbalanced three-phase system that rotates in the direction opposite to the normal rotation of the balanced system (which is counter-clockwise). This negative sequence component can have detrimental effects on motors, generators, and other equipment.

Space Vector Representation

The space vector theory visualizes three-phase AC variables (voltages or currents) as a single rotating vector in a complex plane. By applying mathematical transformations (called symmetrical components transformation), the original three-phase signal can be decomposed into three separate components:

1. **Positive sequence:** This component represents the balanced fundamental frequency portion that rotates in the normal direction.
2. **Negative sequence:** This component, as mentioned earlier, represents the unbalanced portion rotating in the opposite direction.
3. **Zero sequence:** This component represents any common mode (in-phase) content present in all three phases, which is usually undesirable.

Identifying Negative Sequence with Space Vectors

In the space vector diagram, the negative sequence component appears as a vector with the same magnitude as the positive sequence component but rotated by 180 degrees in the opposite direction. This visual representation helps identify the presence and severity of negative sequence imbalances.

Impact of Negative Sequence

The negative sequence component can cause several problems in three-phase systems, including:

- **Increased heating:** Negative sequence currents induce higher heating losses in motors and generators, reducing efficiency and potentially leading to overheating and damage.

- **Reduced torque:** Motors experience a reduction in torque output due to the negative sequence component, impacting their performance.
- **Vibrations:** Negative sequence components can cause increased vibrations in rotating machinery, leading to wear and tear.
- **Protection issues:** Protective relays designed for balanced systems might not operate correctly in the presence of negative sequence currents, potentially compromising equipment safety.

Conclusion

By understanding the space vector representation of the negative sequence component, electrical engineers can identify and analyze unbalanced conditions in three-phase systems. This knowledge helps them mitigate the negative impacts of such imbalances, ensuring efficient and reliable operation of power systems and equipment.

Space Vector

The space vector is complex variable defined as

$$\underline{f} = \frac{2}{3}\left(f_a + f_b e^{j\frac{2\pi}{3}} + f_c e^{j\frac{4\pi}{3}}\right) \quad (1)$$

where

f_a, f_b, f_c are the three-phase variables. In electrical systems, the variable f can be voltage v, current i, or flux linkage λ. In power electronics systems, the variable f can be the modulation function or switching function.

Negative Sequence of Three-Phase Variables

In three-phase power systems, the voltages are typically sinusoidal. The three phase voltages va, vb, vc form a positive sequence if they have the same amplitude and frequency and different phase angles with va lagging vb by 120 degrees and vb lagging vc by 120 degrees.

$$v_a = V\cos(\omega t + \theta) \quad (1)$$

$$v_b = V\cos\left(\omega t + \theta + \frac{2\pi}{3}\right) \quad (2)$$

$$v_c = V\cos\left(\omega t + \theta - \frac{2\pi}{3}\right) \quad (3)$$

Space Vector of Positive-Sequence Variables

With reference to (1) and (2), the voltage space vector is

$$\begin{aligned}\underline{v} &= \frac{2}{3}\left(v_a + v_b e^{j\frac{2\pi}{3}} + v_c e^{j\frac{4\pi}{3}}\right) \\ &= \frac{2V}{3}\left[\cos(\omega t + \theta) + \cos\left(\omega t + \theta + \frac{2\pi}{3}\right)e^{j\frac{2\pi}{3}} + \cos\left(\omega t + \theta - \frac{2\pi}{3}\right)e^{j\frac{4\pi}{3}}\right]\end{aligned} \quad (3)$$

Based on Euler's identity $e^{jx} = \cos x + j\sin x$ the cosine function can be written in terms of exponential functions.

$$\cos x = \frac{e^{jx} + e^{-jx}}{2} \quad (4)$$

Hence, (3) can be rewritten as

$$\begin{aligned}\underline{v} &= \frac{2V}{3\times 2}\left[\begin{array}{l} e^{j(\omega t+\theta)} + e^{j\left(\omega t+\theta+\frac{2\pi}{3}\right)}e^{j\frac{2\pi}{3}} + e^{j\left(\omega t+\theta-\frac{2\pi}{3}\right)}e^{j\frac{4\pi}{3}} + \\ e^{-j(\omega t+\theta)} + e^{-j\left(\omega t+\theta+\frac{2\pi}{3}\right)}e^{j\frac{2\pi}{3}} + e^{-j\left(\omega t+\theta-\frac{2\pi}{3}\right)}e^{j\frac{4\pi}{3}} \end{array}\right] \\ &= V e^{-j(\omega t+\theta)}\end{aligned} \quad (5)$$

State of the art for conventional medicine

Antidepressants enter cells, organelles and membranes

“We begin by summarizing several examples of antidepressants whose therapeutic actions begin when they encounter their targets in the cytoplasm or in the lumen of an organelle. These actions contrast with the prevailing view that most neuropharmacological actions begin when drugs engage their therapeutic targets at extracellular binding sites of plasma membrane targets—ion channels, receptors, and transporters. We review the chemical, pharmacokinetic, and pharmacodynamic principles underlying the movements of drugs into subcellular compartments. We note the relationship between protonation-deprotonation events and membrane permeation of antidepressant drugs. The key properties relate to charge and hydrophobicity/lipid solubility, summarized by the parameters LogP, pKa, and LogDpH7.4. The classical metric, volume of distribution (Vd), is unusually large for some antidepressants and has both supracellular and subcellular components. A table gathers structures, LogP, PKa, LogDpH7.4, and Vd data and/or calculations for most antidepressants and antidepressant candidates. The subcellular components, which can now be measured in some cases, are dominated by membrane binding and by trapping in the lumen of acidic organelles. For common antidepressants, such as selective serotonin reuptake inhibitors (SSRIs) and serotonin/norepinephrine reuptake inhibitors (SNRIs), the target is assumed to be the eponymous reuptake transporter(s), although in fact the compartment of target engagement is unknown. We review special aspects of the pharmacokinetics of ketamine, ketamine metabolites, and other rapidly acting antidepressants (RAADs) including methoxetamine and scopolamine, psychedelics, and neurosteroids. Therefore, the reader can assess properties that markedly affect a drug’s ability to enter or cross membranes—and therefore, to interact with target sites that face the cytoplasm, the lumen of organelles, or a membrane. In the current literature, mechanisms involving intracellular targets are termed “location-biased actions” or “inside-out pharmacology”. Hopefully, these general terms will eventually acquire additional mechanistic details.”[15]

[15] Zack Blumenfeld, Kallol Bera, Eero Castrén and Henry A. Lester, "Antidepressants enter cells, organelles, and membranes", American College of Neuropsychopharmacology, https://aavella77.github.io/posts/2024-theory-geomagnetic/Blumenfeld-NeuropsychopharmRevs-2024.pdf

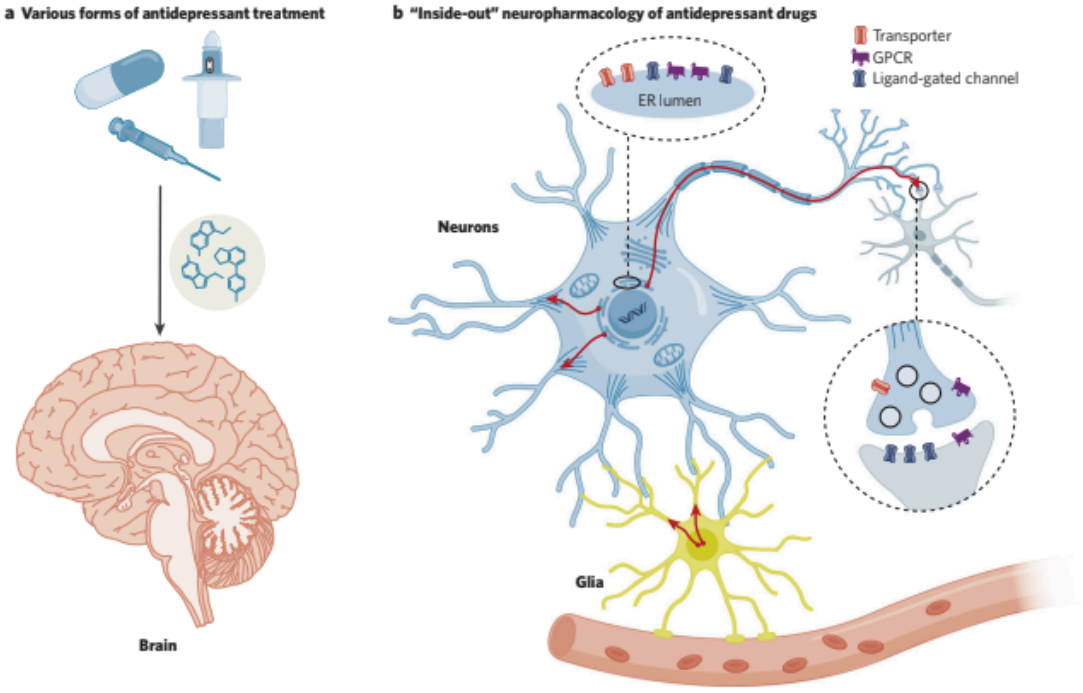


Fig. 1 A cellular-level "inside-out" view of antidepressant actions. a Antidepressants can be administered orally, by injection, or by inhalation. **b** Antidepressants pass the blood-brain barrier and enter the CSF. Antidepressants enter neurons or glia via mechanisms described in the text. Some antidepressants also enter organelles and membranes. "Inside-out" hypotheses [13] emphasize entry into the lumen of vesicles in the early exocytotic pathway, such as the ER and the Golgi apparatus. There, antidepressants may encounter their nascent classical targets such as receptors, ion channels, and transporters. The resulting non-classical mechanisms include "pharmacological chaperoning" of the targets, "matchmaking" between the targets and other macromolecules, "abduction" of the targets away from the physiological destinations, "escorting" to non-classical destinations, and modified stress pathways. The altered molecules and low-MW signals that result from "inside-out" pathways may eventually reach the nucleus to change gene activation, the plasma membrane to change excitability, and other cells to change circuit properties. Additional "inside-out" pathways would include inhibition of activation of intracellular enzymes, activation or inhibition of classical G protein signaling within organelles, actions of drug metabolites, and other events discussed in this volume.

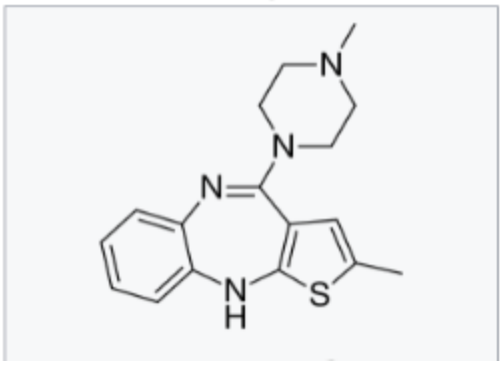
Bipolar Disorder Medications that control Alejandro Avella's manic episodes

Zyprexa (Olanzapine)

Olanzapine[16], sold under the brand name Zyprexa among others, is an atypical antipsychotic primarily used to treat schizophrenia and bipolar disorder. For schizophrenia, it can be used for both new-onset disease and long-term maintenan

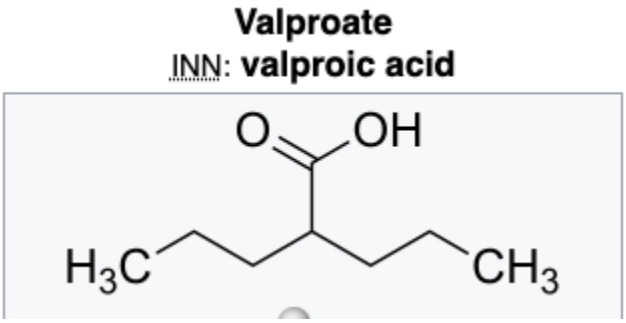
[16] https://en.wikipedia.org/wiki/Olanzapine

Olanzapine



Depakote (Valproic Acid)

Valproate[17] (**valproic acid**, **VPA**, **sodium valproate**, and **valproate semisodium** forms) are medications primarily used to treat epilepsy and bipolar disorder and prevent migraine headaches.[7] They are useful for the prevention of seizures in those with absence seizures, partial seizures, and generalized seizures.[7] They can be given intravenously or by mouth, and the tablet forms exist in both long- and short-acting formulations.[7]



Ambien (Zolpidem)

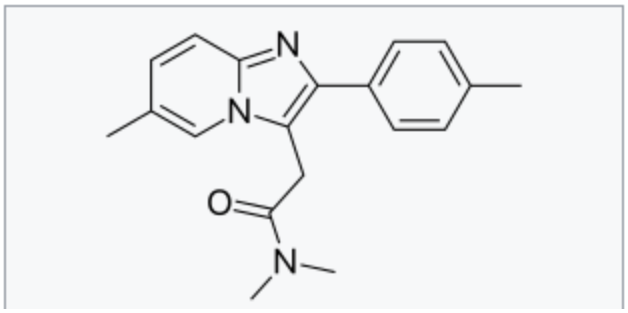
Zolpidem[18], sold under the brand name **Ambien** among others, is a medication primarily used for the short-term treatment of sleeping problems.[10][12] Guidelines recommend that it be used only after cognitive behavioral therapy for insomnia and after behavioral changes, such as sleep hygiene, have been tried.[13][14][15] It decreases the time to sleep onset by about fifteen minutes and at larger doses helps people stay asleep longer.[7] It is taken by mouth and is available in conventional tablets, sublingual tablets, or oral spray.[10]

---

[17] https://en.wikipedia.org/wiki/Valproate

[18] https://en.wikipedia.org/wiki/Zolpidem

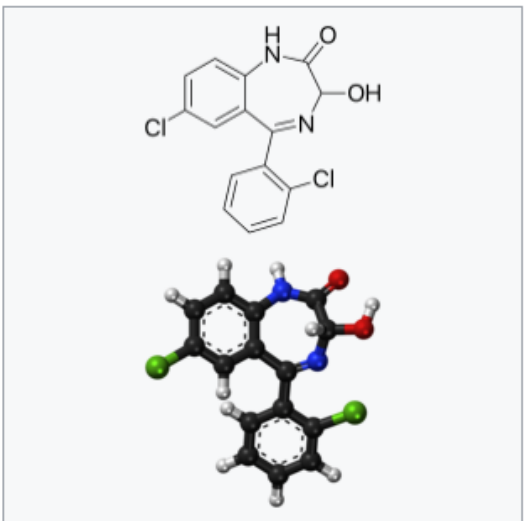
Zolpidem



Lorazepman

Lorazepam, sold under the brand name **Ativan** among others, is a benzodiazepine medication.[7] It is used to treat anxiety (including anxiety disorders), trouble sleeping, severe agitation, active seizures including status epilepticus, alcohol withdrawal, and chemotherapy-induced nausea and vomiting.[7] It is also used during surgery to interfere with memory formation and to sedate those who are being mechanically ventilated.[7][11] It is also used, along with other treatments, for acute coronary syndrome due to cocaine use.[7] It can be given orally (by mouth), transdermal (on the skin via a topical gel or patch), intravenously (IV) (injection into a vein), or intramuscularly (injection into a muscle.)[7] When given by injection, onset of effects is between one and thirty minutes and effects last for up to a day.[7]

Lorazepam



New Dopamine partial agonists in Development

The **atypical antipsychotics** (**AAP**)[19], also known as **second generation antipsychotics** (**SGAs**) and **serotonin–dopamine antagonists** (**SDAs**),[1][2] are a group of antipsychotic drugs (antipsychotic drugs in general are also known as tranquilizers and neuroleptics, although the latter is usually reserved for the *typical antipsychotics*) largely introduced after the 1970s and used to treat psychiatric conditions. Some atypical antipsychotics have received regulatory approval (e.g. by the FDA of the US, the TGA of Australia, the MHRA of the UK) for schizophrenia, bipolar disorder, irritability in autism, and as an adjunct in major depressive disorder.

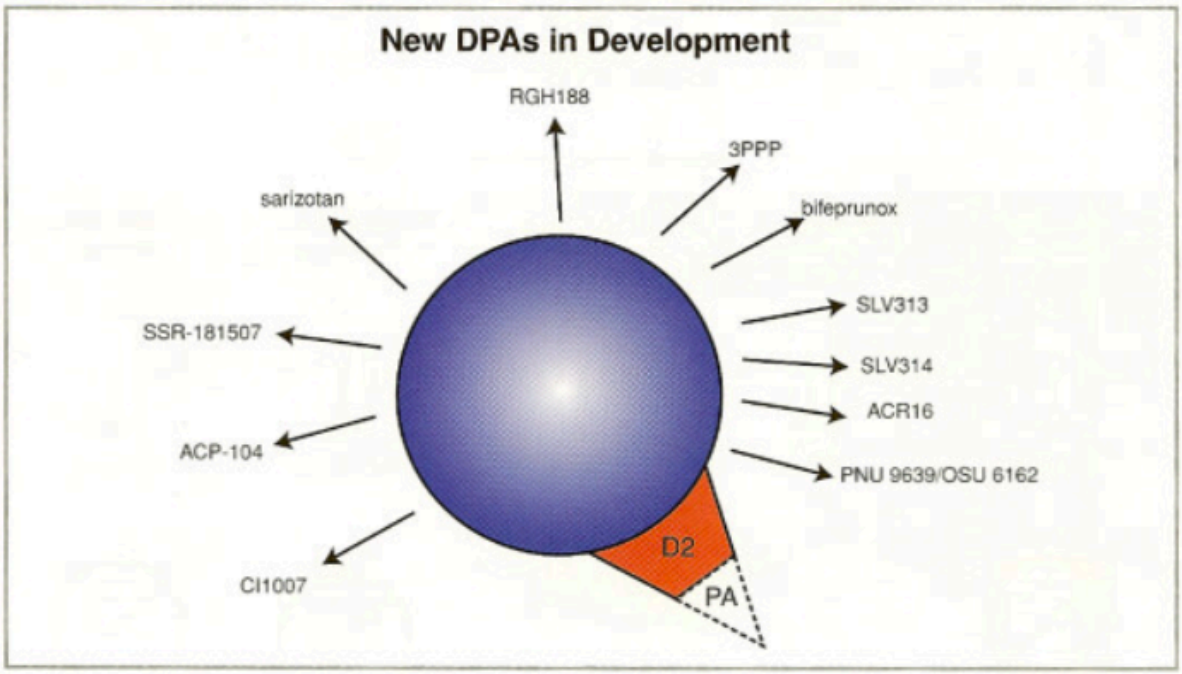


FIGURE 10-53 Dopamine partial agonists in development. New dopamine partial agonists in development include RGH188, 3PPP, bifeprunox, SLV313, SLV314, ACR16, PNU 9639/OSU 6162, CI1007, ACP-104, SSR181507, and sarizotan.

[19] Stahl S. *Antipsychotics Explained 1* (PDF). University Psychiatry. Archived from the original (PDF) on November 7, 2017.

Gene AKAP11

Researchers Stanley Center for Psychiatric Research at the Broad Institute of MIT and Harvard[20] found the first strong genetic risk factor for bipolar disorder. The findings pave the way for more research on the causes of the condition and potential new therapies.

State of the Art for non-conventional treatments

Effect of music on bipolar patients

Music therapy may help some people with bipolar disorder (BD) by reducing anxiety, improving well-being, and providing opportunities for socialization. However, some studies have found that people with BD may have intense emotional reactions to music, which can be uncomfortable but may also help them learn more about their emotions. For example, a 2016 study found that people with BD felt more tense or agitated after listening to joyful music, which may reflect their challenges regulating emotions. Another study found that people with BD may experience feelings of tension when listening to positive music. Therapists who use music therapy with people with BD should be aware of these potential reactions.

For me music is key, to feel love, the most important of the emotions: I recommend this YouTube Playlist.

Reinventing the Body, Resurrecting the Soul: How to Creating a new you

In a book by Deepak Chopra[21], the following statements are made about a holistic cure to the body and mind

- Every skill you learn creates a new neural network in your brain.
- Every new thought creates a unique pattern of brain activity.

[20] Palmer D, et al. Exome sequencing in bipolar disorder reveals shared risk gene AKAP11 with schizophrenia. Nature Genetics. April 6, 2022. DOI: 10.1038/s41588-022-01034-x.
[21] Reinventing the Body, Resurrecting the Soul: How to Creating a new you, Deepak Chopra

- Any change in mood is conveyed via “messenger molecules” to every part of the body, altering the basic chemical activity of each cell.
- Every time you exercise, you alter your skeleton and muscles.
- Every bite of food you eat alters your daily metabolism, electrolyte balance, and proportion of fat to muscle.
- Your sexual activity and the decision to reproduce affects your hormonal balance.
- The stress level to which you subject yourself raises and lowers your immune system.
- Every hour of total inactivity creates muscle atrophy.
- Your genes tune in to your thoughts and emotions, and in mysterious ways they switch on and off according to your desires.
- Your immune system gets stronger or weaker in response to being in a loving or unloving relationship.
- Crises of grief, loss, and loneliness increase the risk of disease and shortened lifespan.
- Using your mind keeps your brain young; not using your brain leads to its decline.

The answer is that solving small pieces of the puzzle has been much easier than seeing the whole. Medicine is practiced in specialties. If you fall in love, an endocrinologist can report on the decline of stress hormones in your endocrine system. A psychiatrist can report on your improved mood, which a neurologist can confirm through a brain scan. A dietician may be worried that you’re losing your appetite; on the other hand, what you do eat is digested better. And so it goes. No one can provide you with a complete picture.

Body and mind hygiene

In a book by Facundo Manes and Mateo Niro the following recommendations are made about sleep and mind[22].

[22] Usar el cerebro: Conocer nuestra mente para vivir mejor (Spanish Edition), Facundo Manes, Mateo Niro

Take care of sleep

• Establish a set of habits that indicate the proximity of bedtime.
• Arrange the bedroom so that it promotes sleep. Establish a comfortable temperature and minimum light and noise levels.
• Do not use the bed for activities such as studying or eating.
• Do not drink alcohol at least two hours before bedtime.
• Do not consume caffeine at least six hours before going to bed. Know the foods, drinks, and medications that contain caffeine. The effects of caffeine can be present for up to twenty hours after ingestion.
• Do not smoke for several hours before going to bed, as nicotine is a stimulant.
• Avoid excessive physical exercise several hours before going to bed, as it causes physiological activation.
• Do not eat when you get up at night.
• Avoid excessive fluid consumption close to bedtime.
• Do not use an excessively hard mattress.
• Avoid technology, especially if it is related to work issues, at least two hours before bedtime.

Take care of your mind

Challenge your brain with new things every day:
• Play crosswords, puzzles, or board games.
• Learn a new language, play a musical instrument or take a course in a specialty that you like.
• Try new activities such as going to the theater, attending a concert, visiting museums or art galleries. Take care of your diet. Enjoy a healthy meal, choosing:
• A variety of foods.
• Vegetables, fruits, legumes (lentils, peas, etc.), whole wheat bread, cereals.
• Lean meats, chicken, fish and low-fat dairy products.
• Olive, sunflower, soy or safflower oil. Take care of the body. Get physical activity daily in some way that you enjoy:
• Walk or bike to work or as a recreational activity.

• Dance, run or swim.
• Join a gym, and go!; do yoga or pilates.
• Take up gardening.
• Play sports as a recreational or competitive activity.
• Take care of your health. Know your blood pressure, your cholesterol and blood glucose level, and your weight. All of these factors can increase your risk of developing dementia if they are too high. Ask your doctor to check them. Knowing these indicators also helps you manage problems if you have them. And it also helps to manage these problems, if you have them.
• Take care of your social life. Engage in social activities, stay socially connected:
• Get together with family and friends.
• Join a club or recreation center.
• Participate in community events or volunteer. Watch your habits. Avoid “bad habits”:
• Don't smoke.
• If you drink alcohol, do so in moderation. Take care of your head. Protect your head from severe injuries:
• Be careful as a pedestrian.
• Always wear a seat belt.
• Wear a helmet when riding a bicycle, motorcycle, skating or doing sports that require it. Examples of exercises to keep the mind in shape:
• Watch a movie and tell the plot in great detail to someone who has not seen it.
• Do the math in your head at the supermarket and then compare it with the result offered by the cashier.
• Brush your teeth with your non-dominant hand.
• When you enter a room full of people, try to quickly calculate how many people are to your right and how many are to your left.
• When dining at a restaurant or at a friend's house, try to identify the ingredients used in the dish you are eating. Focus on subtle flavors. Then check the perceptions and sensations with the waiter or the rest of the diners.

Dave Scott - 6-time Ironman Triathlon Worldwide champion

Dave Scott (born January 4, 1954) is a U.S. triathlete and the first six-time Ironman World Championship winner (1980, 1982, 1983, 1984, 1986, and 1987).[1] A progenitor of the sport, in 1993, Scott was the first person ever inducted in the Ironman Hall of Fame.[2] He is known by the nickname "The Man" for his intense training regimens and his unrelenting race performances that created a record number of wins.

In 1994, at age 40, he won second place at the Hawaii Ironman World Championship, very nearly winning for a record-breaking seventh time.[3] In 1996 at age 42, he returned again to place 5th, running the marathon in 2:45.

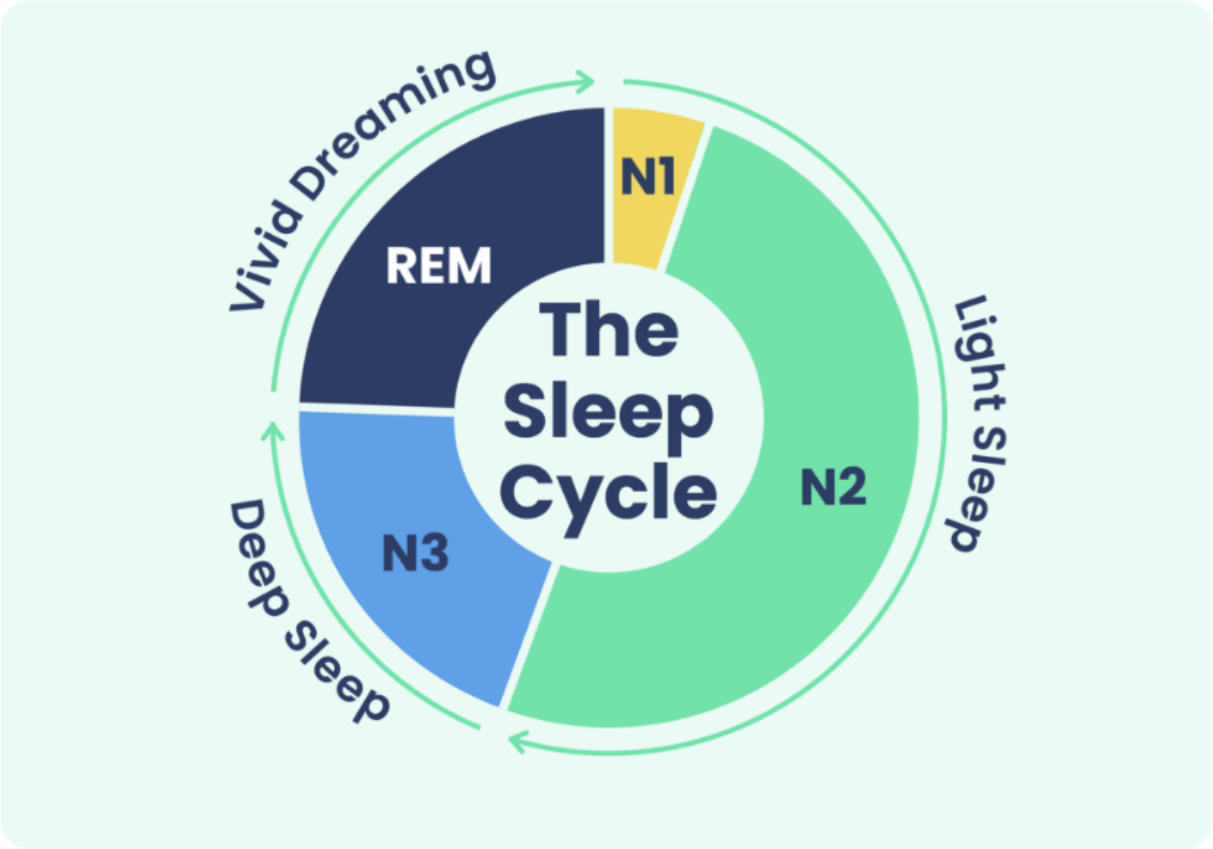
I was fortunate enough to have Dave as my personal coach for running and swimming in Boulder, Colorado.

Sleep Cycle

Key Takeaways

- Three non-rapid eye movement stages and one rapid eye movement stage make up one sleep cycle.
- A person will typically go through four to six sleep cycles per night, although the duration of each stage may vary.
- The sleep stages allow the brain to recuperate from the day and support multiple functions.
- Improved sleep hygiene can encourage healthy transitions through the sleep stages.

What Is the Sleep Cycle?

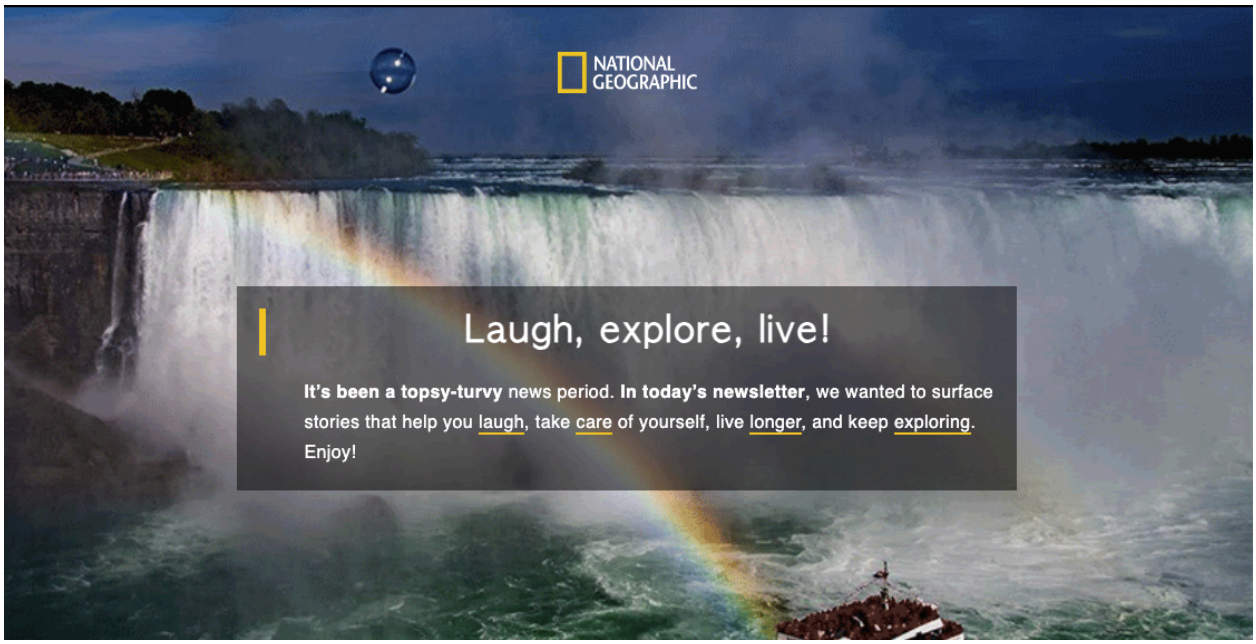


When thinking about getting the sleep you need, it is normal to focus on how many hours of sleep you get. While sleep duration is undoubtedly important, it is not the only part of the equation.

It is also critical to think about sleep quality and whether the time spent sleeping is actually restorative. Progressing smoothly multiple times through the sleep cycle[23], composed of four separate sleep stages, is a vital part of getting high-quality rest.

Each sleep stage plays a part in allowing the mind and body to wake up refreshed. Understanding the sleep cycle also helps explain how certain sleep disorders, including insomnia and obstructive sleep apnea, can impact a person's sleep and health.

Laugh, take care of yourself, live longer and keep exploring



[23] https://www.sleepfoundation.org/stages-of-sleep

Laugh

Can laughter strengthen your immune system? Here's what science says. From reduced inflammation to pain relief to increased levels of dopamine, there are tangible benefits behind emotions like curiosity and amusement.

Care

Meals developed over generations based on whole grains, greens, nuts, and beans offer the promise of eluding disease and staying healthy.
More than 14 years have passed since Dan Buettner first wrote about the world's longest-lived people for the magazine. Today he's still uncovering the secrets of centenarians in regions he calls the blue zones. He recently returned to four of them to learn more about the foods that contribute to this remarkable longevity, collecting time-tested recipes and investigating why certain foods seem to promote long lives.

Live Longer

Can positive thinking prolong your life? Science says yes. Studies show that staying optimistic about aging can be as beneficial to your health as exercising or eating well.

Keep Exploring

National Geographic's annual Best of the World feature is a gateway to the streets of Paris, the snowy Caucasus Mountains of Georgia, the ancient rock art of Algeria. To help us engage with places more deeply and meaningfully, we drew on National Geographic's global community of experts to create the following ranked list of 20 great adventures for 2024. Read on and you'll discover that this page is also a celebration—of travel's power to transform us and our connections with one another.

The body screams, what the mouth shout

Illness is a conflict between the personality and the soul[24]." Many times, "The cold "drips" when the body does not cry. A sore throat "clogs" when it is not possible to communicate one's afflictions. The stomach burns when the anger cannot come out. Diabetes invades, when loneliness hurts. The body fat when pressed dissatisfaction. Headache is depressing when doubts increase. The heart weakens when the meaning of life seems to end. Allergy occurs when perfectionism is intolerable. Nails break when defenses are threatened. The chest tightens when pride enslaves. The pressure rises when fear imprisons. Neuroses paralyzed, when the inner child is bullied. Fever heats up when the defenses exploit the borders of immunity. Knees hurt when your pride is not cowed. Cancer kills when you don't forgive. *And your silent pains? How do they speak in your body? The disease is not bad,

There are traffic lights called FRIENDS, caution lights called FAMILY, and everything is achieved if you have: A spare tire called DECISION, a powerful engine called LOVE, good insurance called FAITH, abundant fuel called PATIENCE, but above all, an expert driver called GOD!

The body shouts what the mouth is silent, illness is a conflict between the personality and the soul, where the affected will be the spirit.... the illness comes from an unhealthy emotion. Personality is the essence that God gives to man, since it is made up of traits and characteristics that distinguish us from each other.

And your silent pains, how do they speak in your body? The illness is not bad, it warns you that you are taking the wrong path...

The soul is the evil part that exists in every human being; We could say that it is the carnal part that feeds on what is mundane or vain. The soul is life, it is the blood and the spirit of God moves life, that is why we have the breath of life (breath), which is what makes us live.

---

[24] El cuerpo grita lo que la boca calla El libro de las enfermedades Tomo 1, Editorial C.A.F.É., Macabeo (Spanish Edition). Reflexión de Nelson Torres, Doctor en Psiquiatría (UCV) y experto en Psico-neuro-inmunolinguística (PNL)

This is how the conflict or internal struggle of the spirit (essence-will) against the soul (flesh-intelligence) arises. Seen another way, it is the fight of intelligence (since the soul invites you to reason, but it can lose you, since it will always look for a benefit for selfishness) and will (since the spirit takes you along the right paths, as long as apply the humility that means “the truth”).

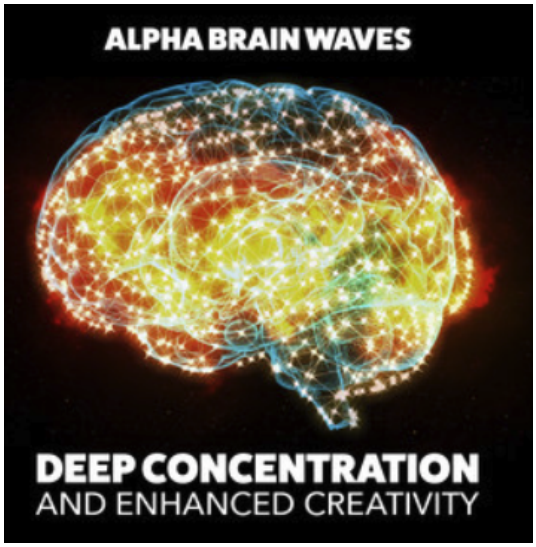
The mind makes the body sick and the spirit comes to its defense, that is, it is the alarm that announces that the spirit is in danger. The body gives its life to save the spirit because it is the one that receives the attacks.

Illnesses are allowed by God as a result of learning something in life, it is a teaching.

Illnesses are also caused by damage to emotions (weakness or defect), by curses (witchcraft, Santeria, rituals, etc.) or by malice (due to attitudes intended to harm).

Alpha Brain Waves

Alpha waves, or the **alpha rhythm**, are neural oscillations in the frequency range of 8–12 Hz[1] likely originating from the synchronous and coherent (in phase or constructive) electrical activity of thalamic pacemaker cells in humans. Historically, they are also called "Berger's waves" after Hans Berger, who first described them when he invented the EEG in 1924.[2]



Alpha waves are one type of brain waves detected by electrophysiological and closely related methods, such as by electroencephalography (EEG) or magnetoencephalography (MEG), and can be quantified using quantitative electroencephalography (qEEG). They can be predominantly recorded from the occipital lobes during wakeful relaxation with closed eyes and were the earliest brain rhythm recorded in humans.[3] Alpha waves are reduced with open eyes and sleep, while they are enhanced during drowsiness. Occipital alpha waves during periods of eyes closed are the strongest EEG brain signals.[4]

Historically, alpha waves were thought to represent the activity of the visual cortex in an idle state. More recently, research suggests that they inhibit areas of the cortex not in use, or alternatively that they play an active role in network coordination and communication.[5] Whether they are inhibitory or play an active role in attention links to their direction of propagation, with top-down rearward waves being inhibitory, and forward bottom-up ones aiding visual attentional processes.[6]

An alpha-like variant called a mu wave can be found over the primary motor cortex.[*citation needed*]

Aromatherapy

Aromatherapy is a practice based on the use of aromatic materials, including essential oils and other aroma compounds, with claims for improving psychological well-being.[1][2][3] It is used as a complementary therapy or as a form of alternative medicine, and typically is used via inhalation and not by ingestion.[2]

Fragrances used in aromatherapy are not approved as prescription drugs in the United States.[3] Although there is insufficient medical evidence that aromatherapy can prevent, treat or cure any disease,[1][2][4] aromatherapy is used by some people with diseases, such as cancer, to provide general well-being and relief from pain, nausea or stress.[1][2]

People may use blends of essential oils as a topical application, massage, inhalation, or water immersion.[1][2][5] Due to the low quality of research evidence, it is uncertain if aromatherapy provides any benefit to people experiencing nausea after surgery.[6]

Essential oils comprise hundreds to thousands of aromatic constituents, like terpinoids and phenylpropanoids, and to sufficiently research the pharmacological effects of essential oil constituents, each isolated constituent in the selected essential oil would have to be studied.[2][3]

Massages

Massage is the rubbing or kneading of the body's soft tissues.[1] Massage techniques are commonly applied with hands, fingers, elbows, knees, forearms, feet or a device.[2][3] The purpose of massage is generally for the treatment of body stress or pain.[4][5][6] In European countries, a person professionally trained to give massages is traditionally known as a masseur (male) or masseuse (female). In the United States, these individuals are often referred to as "massage therapists".[7] In some provinces of Canada, they are called "registered massage therapists."[8][9]

In professional settings, clients are treated while lying on a massage table, sitting in a massage chair, or lying on a mat on the floor.[10] There are many different modalities in the massage industry, including (but not limited to): deep tissue, manual lymphatic drainage, medical, sports, structural integration, Swedish, Thai and trigger point.[11]

Acupuncture

Acupuncture[b] is a form of alternative medicine[2] and a component of traditional Chinese medicine (TCM) in which thin needles are inserted into the body.[3]

Acupuncture is a pseudoscience;[4][5] the theories and practices of TCM are not based on scientific knowledge,[6] and it has been characterized as quackery.[c]

There is a range of acupuncture technological variants that originated in different philosophies,[7] and techniques vary depending on the country in which it is performed. However, it can be divided into two main foundational philosophical applications and approaches; the first being the modern standardized form called eight principles TCM and the second being an older system that is based on the ancient Daoist *wuxing*, better known as the five elements or phases in the West.[8][9][10] Acupuncture is most often used to attempt pain relief,[11][12] though acupuncturists say that it can also be used for a wide range of other conditions. Acupuncture is generally used only in combination with other forms of treatment.[13]

The global acupuncture market was worth US$24.55 billion in 2017. The market was led by Europe with a 32.7% share, followed by Asia-Pacific with a 29.4% share and the Americas with a 25.3% share. It was estimated in 2021 that the industry would reach a market size of US$55 billion by 2023.[14]

The conclusions of trials and systematic reviews of acupuncture generally provide no good evidence of benefit, which suggests that it is not an effective method of healthcare.[15][16] Acupuncture is generally safe when done by appropriately trained practitioners using clean needle technique and single-use needles.[17][18] When properly delivered, it has a low rate of mostly minor adverse effects.[3][17] When accidents and infections do occur, they are associated with neglect on the part of the practitioner, particularly in the application of sterile techniques.[11][18] A review conducted in 2013 stated that reports of infection transmission increased significantly in the preceding decade.[19] The most frequently reported adverse events were pneumothorax and

infections.[11] Since serious adverse events continue to be reported, it is recommended that acupuncturists be trained sufficiently to reduce the risk.[11]

Scientific investigation has not found any histological or physiological evidence for traditional Chinese concepts such as *qi*, meridians, and acupuncture points,[d][23] and many modern practitioners no longer support the existence of life force energy (*qi*) or meridians, which was a major part of early belief systems.[7][24][25] Acupuncture is believed to have originated around 100 BC in China, around the time *The Inner Classic of Huang Di* (Huangdi Neijing) was published,[26] though some experts suggest it could have been practiced earlier.[8] Over time, conflicting claims and belief systems emerged about the effect of lunar, celestial and earthly cycles, yin and yang energies, and a body's "rhythm" on the effectiveness of treatment.[27] Acupuncture fluctuated in popularity in China due to changes in the country's political leadership and the preferential use of rationalism or scientific medicine.[26] Acupuncture spread first to Korea in the 6th century AD, then to Japan through medical missionaries,[28] and then to Europe, beginning with France.[26] In the 20th century, as it spread to the United States and Western countries, spiritual elements of acupuncture that conflicted with scientific knowledge were sometimes abandoned in favor of simply tapping needles into acupuncture points.[26][29][30]

Taichi

Tai chi is an ancient Chinese martial art. Initially developed for combat and self-defense, it has evolved into a sport and form of exercise. Tai chi is a gentle, low-impact form of exercise in which practitioners perform a series of deliberate, flowing motions while focusing on deep, slow breaths. Often referred to as "meditation in motion," tai chi aims to concentrate and balance the body's *qi* (vital energy), providing benefits to mental and physical health.[1]

Many forms of tai chi are practiced, both traditional and modern. While the precise origins are not known, the earliest documented practice is from Chen Village, Henan. Most modern styles trace their development to the five traditional schools: Chen, Yang, Wu (Hao), Wu, and Sun. Practitioners such as Yang Chengfu and Sun Lutang in the early 20th century promoted the art for its health benefits.[2] Tai chi was included in the UNESCO List of Intangible Cultural Heritage of Humanity in 2020.[3]

Feng shui

Feng shui (/ˈfʌŋˌʃuːi/ [2] or /ˌfʌŋˈʃweɪ/[3]), sometimes called **Chinese geomancy**, is a traditional practice that originated in Ancient China and claims to use energy forces to harmonize individuals with their surrounding environment. The term *feng shui* means, literally, "wind-water" (i.e., fluid). From ancient times, landscapes and bodies of water were thought to direct the flow of the universal Qi – "cosmic current" or energy – through places and structures. More broadly, feng shui includes astronomical, astrological, architectural, cosmological, geographical, and topographical dimensions.[4][5]

Historically, as well as in many parts of the contemporary Chinese world, feng shui was used to choose the orientation of buildings, dwellings, and spiritually significant structures such as tombs. One scholar writes that in contemporary Western societies, however, "feng shui tends to be reduced to interior design for health and wealth. It has become increasingly visible through 'feng shui consultants' and corporate architects who charge large sums of money for their analysis, advice and design."[5]

Feng shui has been identified as both non-scientific and pseudoscientific by scientists and philosophers,[6] and it has been described as a paradigmatic example of pseudoscience.[7] It exhibits a number of classic pseudoscientific aspects, such as making claims about the functioning of the world that are not amenable to testing with the scientific method.[8]

Vastu

Originating in ancient India, ***Vastu Shastra*** (Sanskrit: वास्तु शास्त्र, *vāstu śāstra* – literally "science of architecture"[2]) is a traditional Hindu system of architecture[3][4] based on ancient texts that describe principles of design, layout, measurements, ground preparation, space arrangement, and spatial geometry.[5] The designs aim to integrate architecture with nature, the relative functions of various parts of the structure, and ancient beliefs utilising geometric patterns (yantra), symmetry, and directional alignments.[6][7]

Vastu Shastra are the textual part of *Vastu Vidya* – the broader knowledge about architecture and design theories from ancient India.[8] Vastu Vidya is a collection of ideas and concepts, with or without the support of layout diagrams, that are not rigid. Rather, these ideas and concepts are models for the organisation of space and form within a building or collection of buildings, based on their functions in relation to each other, their usage and the overall fabric of the Vastu.[8] Ancient Vastu Shastra principles include those for the design of *Mandir* (Hindu temples)[9] and the principles for the design and layout of houses, towns, cities, gardens, roads, water works, shops, and other public areas.[5][10][11] The Pandit or Architects of Vastu Shastra are *Sthapati*, *Sūtragrāhin(Sutradhar)*, *Vardhaki*, and *Takṣhaka*.[12]

In contemporary India, states Chakrabarti, consultants that include "quacks, priests and astrologers" fueled by greed are marketing pseudoscience and superstition in the name of Vastu-sastras. They have little knowledge of what the historic Vastu-sastra texts actually teach, and they frame it in terms of a "religious tradition", rather than ground it in any "architectural theory" therein.[13]

Tarot Cards

Tarot (/ˈtærəʊ/, first known as *trionfi* and later as ***tarocchi*** or ***tarocks***) is a pack of playing cards, used from at least the mid-15th century in various parts of Europe to play card games such as Tarocchini. From their Italian roots, tarot-playing cards spread to most of Europe, evolving into a family of games that includes German Grosstarok and modern games such as French Tarot and Austrian Königrufen. In the late 18th century French occultists made elaborate, but unsubstantiated, claims about their history and meaning, leading to the emergence of custom decks for use in divination via tarot card reading and cartomancy.[1] Thus, there are two distinct types of tarot packs in circulation: those used for card games and those used for divination. However, some older patterns, such as the Tarot de Marseille, originally intended for playing card games, are occasionally used for cartomancy.

Tarot cards, then known as *tarocchi*, first appeared in Ferrara and Milan in northern Italy, with the Fool and 21 trumps (then called *trionfi*) being added to the standard Italian pack of four suits: batons, coins, cups and swords.[2] Scholarship has established that the early European cards were probably based on the Egyptian Mamluk deck invented in or before the 14th century, which followed the introduction of paper from Asia into Western Europe.[3] By the late 1300s, Europeans were producing their own cards, the earliest patterns being based on the Mamluk deck but with variations to the suit symbols and court cards.[3]

Case Study - Alejandro Avella

My doctors

Bruce Wermuth, M.D.

Dr. Wermuth[25] has seen many suffering people with mental disorders and he knows how to help them with state of the art medicine. He is a wonderful human being! More than my doctor, I see him as another father that can help me with my bipolar disorder I. In addition, he knows how to help the immediate family that has to deal with the mentally sick individual. Usually, the family has a big burden trying to help the sick person. In addition, he went to top schools for his training as a psychiatrist and he is on top of the latest advances in drug therapies. He recommended me to go to Stahl Online[26] for the latest and greatest advances in medicine.

William Wenokor, M.D.

Dr. Wenokor[27] has been practicing Psychiatry in the Boulder Area for over 25 years. He specializes in a wide variety of behavioral health issues including, but not limited to, Mood Disorders, Major Depression. Anxiety Disorders and ADHD. In addition to being Board Certified in Psychiatry, Dr. Wenokor is also certified in Sleep Medicine, treating disorders such as insomnia, circadian rhythms, narcolepsy, etc. He has extensive history in working with families and extended support systems. He strives to help his patients achieve a functional and fulfilling life.

---

[25] https://lgtcgroup.com/about/team/

[26] https://www.cambridge.org/core/publications/collections/stahl-online

[27] https://www.psychiatryofboulder.com/

Manuel Ortega, M.D.

Dr. Manuel Ortega[28] believes in respect, empathy, kindness, solidarity, the importance of creating a space for reflection that allows us to work together and above all in the potential of people, even in their worst moments of life.

He has dedicated more than 40 years to working in Mental Health as a Psychiatrist and Coach, which has allowed him to deeply understand the complexity of the mind. He is convinced of the need to integrate the contributions of different schools, theories or areas of study and the usefulness of transmitting them in a simple way.

Alejandro Avella's manic episode on July 2024

Medications

Zyprexa Normal dosage: 15 mg at 8 PM.

Increased to 20 mg on July 5, 2024 (only for one day)

Increased to 25 mg on July 12, 2024 at 9 PM (still at this dosage on July 24, 2024)

Depakote 1000 mg at 9 PM, 500 mg at 8 AM.

Ambien 10 mg at 9 PM

Lorazepam 1 mg at 9 PM

Melatonin 2 tablets at 8 PM for sleep

Other information

Weight: 218 pounds. Note: 2 months ago my weight was 245 pounds (~10% decrease)

Resting Heart Rate: 74 bpm average. It looks elevated. Normally it is 65 rpm for me. (~14% increase)

Last Episode: Manic between December 18th, 2022 to December 28th, 2022 ("Qatar 2022"). Tapering off in January 2023, followed by mild depression.

[28] https://www.instagram.com/manuelortega1313/

Recent events

Events in my life in the last 2 months

1. Lost job on May 5, 2024
2. Mom passed away on June 2nd, 2024

What appears to be the cause of this episode was the pressure I had of a change of job at Roku (my employer) and not being able to perform adequately. As soon as I was laid off, I got a very bad cold, my dermatitis on my face got worse, and I started having problems sleeping. The job stress was really killing literally and the people skills of my manager did not help for sure. He was micromanaging me and stressing me out. I was not trained for the change from tester to developers. I was just thrown into the “shark sea” to try to become a developer on my own.

Episode Observations

My sleep cycle started to become disrupted on July 3, 2024 and appears to be normal as of July 18, 2024, however it was only fully restored as of July 24, 2024. Normally, I sleep an average 9.5 hours and in this episode I slept an average of 3 to 5 hours for about 9 days. The typical pattern for me is that I fall asleep without too much trouble, but then I wake up around 2 AM in the morning, and then I cannot sleep anymore (with racing thoughts).

In this episode, I woke up uncontrolled in one night and lucid in another night. When this happens to me I wake up from bed and start to write many disorganized ideas on paper. The second time I wrote ideas on paper and I was lucid. When I walked or swam during the day, I was able to sleep much better.

The following table captures the amount of time I was able to sleep in June-July 2024, medicines taken and some notes.

Date	Total Sleep	Bed Time	Wake up time	Medicines taken	Notes
Jul 24	7h 52m	10:34 PM	6:26 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	Finally, I felt completely rested.

Date	Total Sleep	Bed Time	Wake up time	Medicines taken	Notes
Jul 18	6h 42m	9:25 PM	4:15 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	I feel rested now
Jul 17	4h 8m	10:41 PM	3:01 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	
Jul 16	9h 34m	8:33 PM	6:21 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	First night felt rested
Jul 15	4h 32m	9:15 PM	1:50 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	
Jul 14	3h 59m	1:28 AM	6:12 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	
Jul 13	6h 40m	12:14 AM	7:16 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	I feel drowsy - feels I slept well - feel dehydrated
Jul 12	7h 30m	10:19 PM	5:57 AM	Zyprexa 25mg - Ambien 10 mg 10 PM - Lorazepam 1mg	I feel sleep well - didn't wake up - I am constipated
Jul 11	3h 2m	11:24 PM	2:53 AM	Zyprexa 20 mg - No Ambien	I felt that I did not sleep during all night
Jul 10	3h 35m	8:57 PM	12:46 AM	Ambien 10 mg at 10 PM and 2 AM.	Medications did not work. Woke up extremely tired.
Jul 9	5h 10m	10:13 PM	3:31 AM	Ambien 10 mg at 10 PM and 3 AM.	Medications did not work.
Jul 8	3h 35m	9:13 PM	1:02 AM	Ambien 10 mg at 10 PM and 3 AM.	Medications did not work. Exercise did not help.
Jul 7	5h 55m	10:48 PM	4:47 AM		Swam 850 mts and walked 9,000 steps.
Jul 6	4h 1m	2:43 AM	6:46 AM		
Jul 5	10h 12m	9:06 PM	7:21 AM	Took 20 mg of Zyprexa instead of 15 mg	Woke with drowsiness and dizziness, had to stay in bed for 2 hours.
Jul 4	5h 49m	9:50 PM	3:41 AM		
Jul 3	6h 58m	10:02 PM	5:07 AM		Started having sleeping problems
Jul 2	9h 42m	9:01 PM	6:46 AM		
Jul 1	10h 11m	8:42 PM	7:01 AM		

Date	Total Sleep	Bed Time	Wake up time	Medicines taken	Notes
Jun 30	6h 25m	10:09 PM	4:40 AM		
Jun 29	8h 6m	9:45 PM	6:08 AM		
Jun 28	5h 56m	10:39 PM	4:43 AM		
Jun 27	9h 35m	9:37 PM	7:19 AM		
Jun 26	6h 0m	1:22 AM	7:31 AM		
Jun 25	8h 42m	10:31 PM	7:19 AM		
Jun 24	11h 3m	9:41 PM	8:46 AM		
Jun 23	5h 28m	8:52 PM	2:27 AM		
Jun 22	11h 9m	10:08 PM	9:26 AM		
Jun 21	9h 27m	8:37 PM	6:11 AM		
Jun 20	5h 58m	12:15 AM	6:18 AM		
Jun 19	7h 19m	9:46 PM	5:16 AM		
Jun 18	10h 57m	9:38 PM	8:36 AM		
Jun 17	8h 21m	9:36 PM	6:00 AM		

Sleep Graphs

You can see the disturbance of sleep of July 2024 in blue in Figure 2 and waking out during the middle of the night on Figure 3 in July 2024.

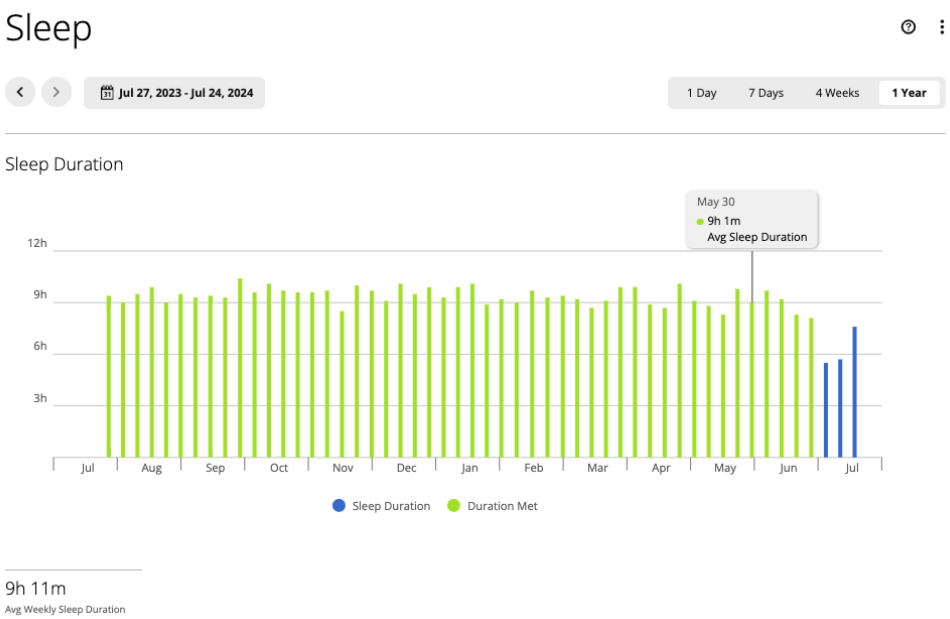


Figure 2 - Sleep Disturbance in July 2024 in blue

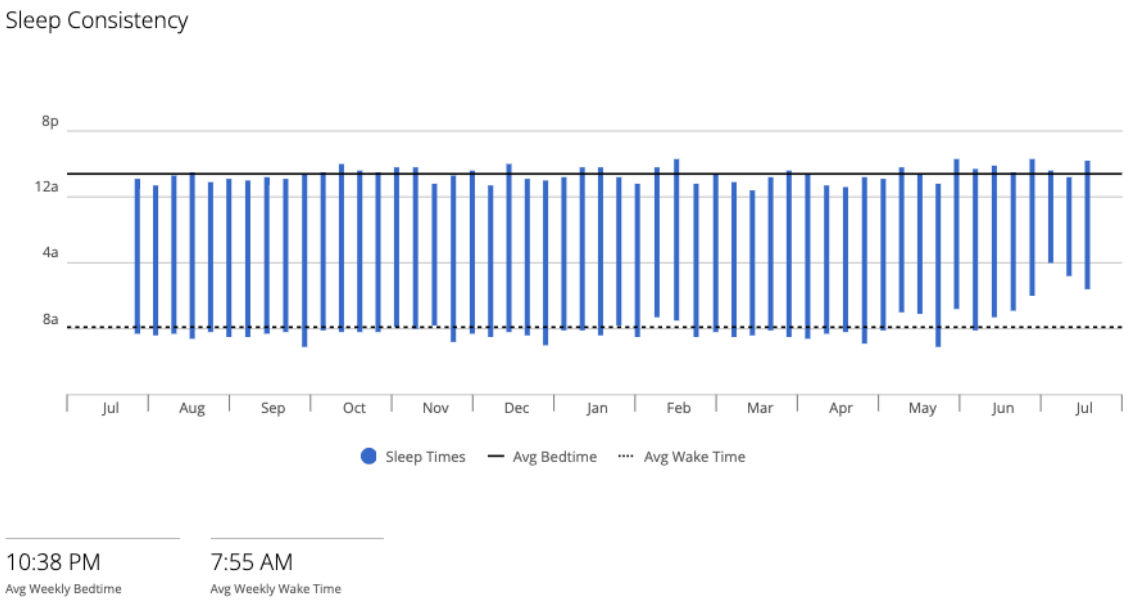
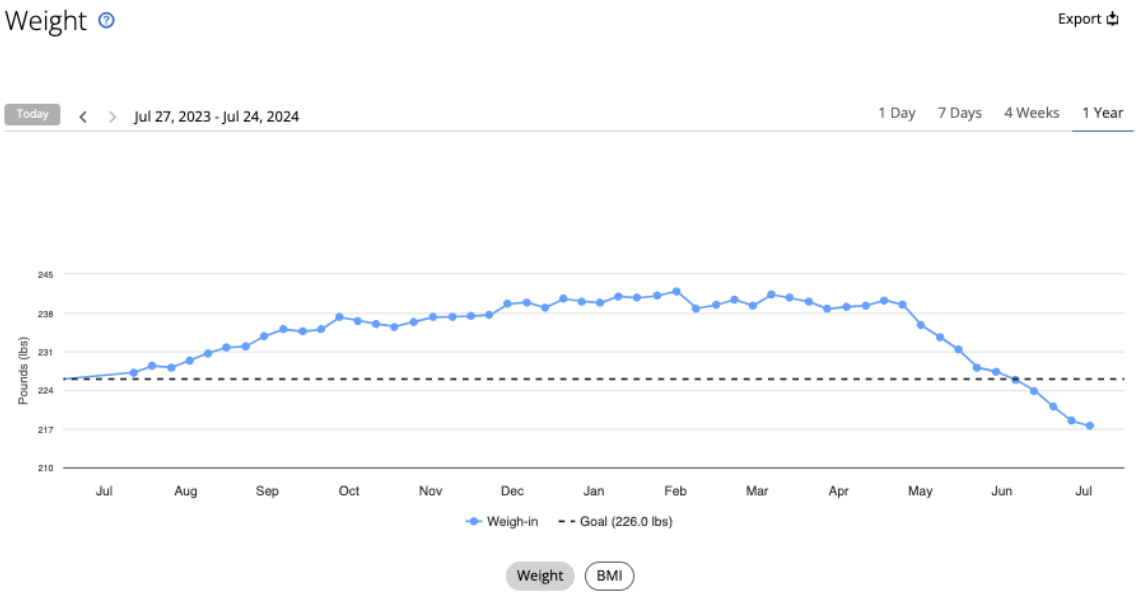


Figure 3 - Sleep Consistency disturbed in July 2024

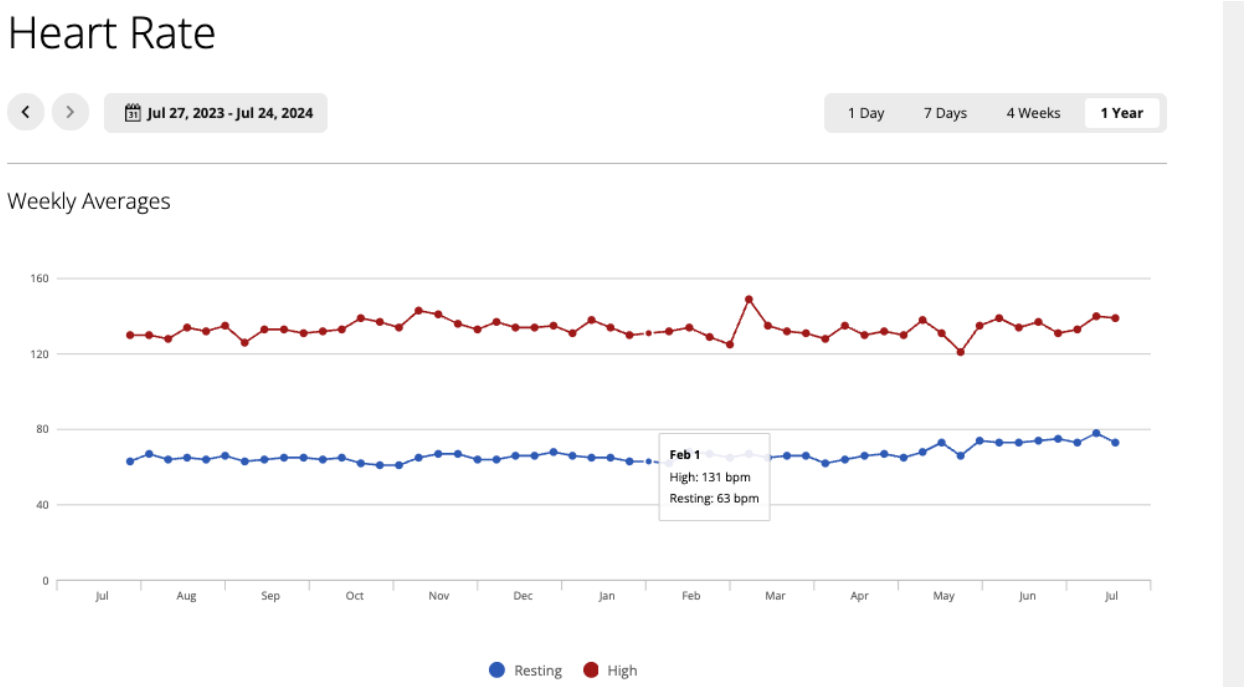
Weight graphs

Decreased 27 pounds from May 2024 to July 2024, I think the bad nutrition and stress made me increase weight.



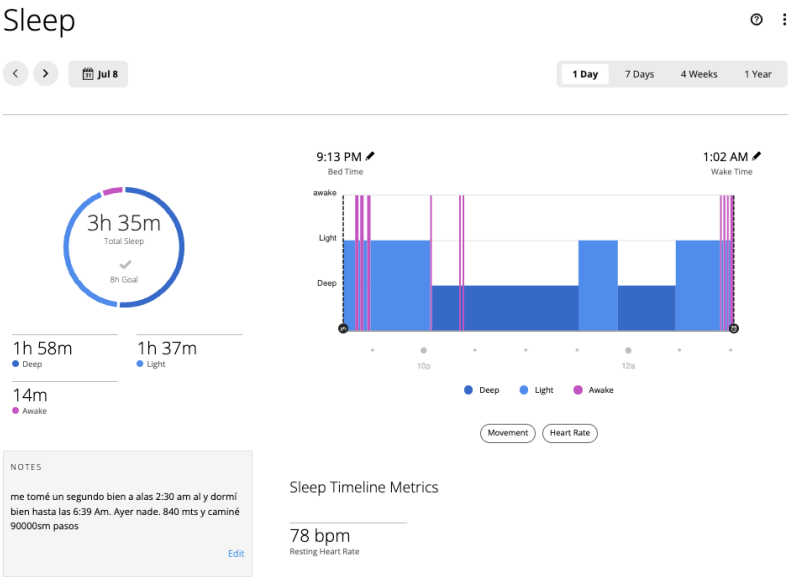
Heart Rate graphs

Heart rate elevated in July 2024 from 63 bpm when normal to 73 bpm in July 2024



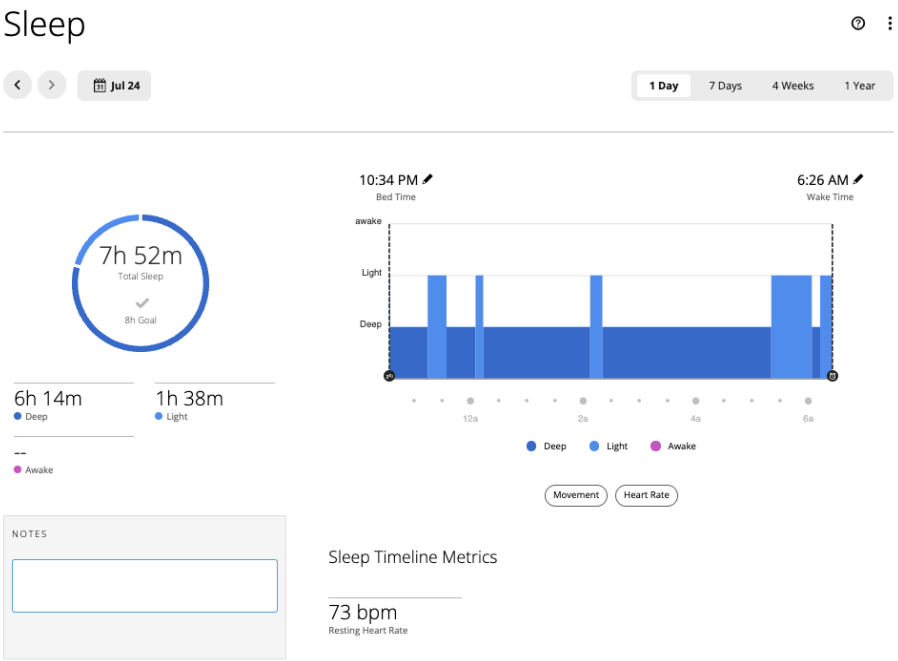
A sample bad night of sleep

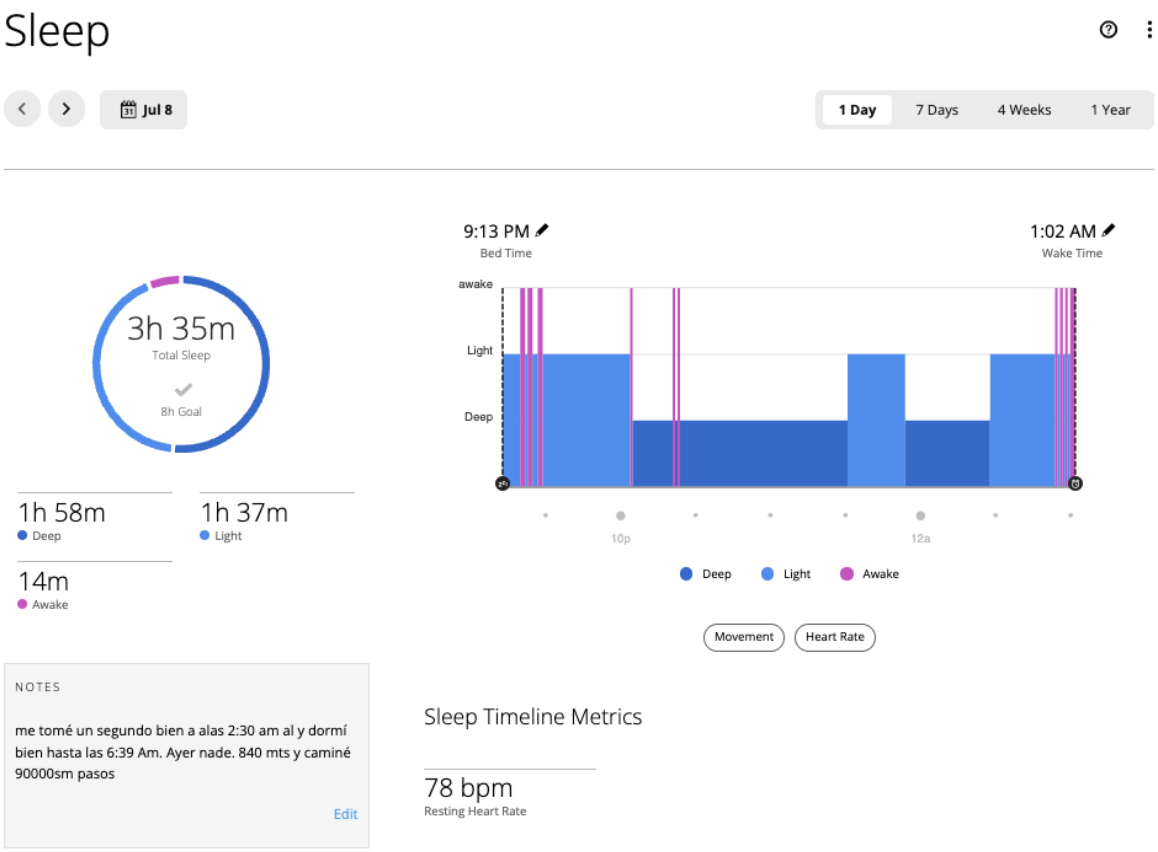
On July 8, only slept about 3.5 hours



A sample good night of sleep

On July 24, 2024, I was finally able to rest with a lot of deep





Further study

Using Google Deepmind's Alphafold[29] and advances in genetics to study new medications to control Bipolar Disorder manic episodes caused by the Geomagnetic field theory.

[29] https://deepmind.google/technologies/alphafold/