ORIGINAL PAPER



Health Aspirations for Transcranial Direct Current Stimulation (tDCS)

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Received: 13 August 2023 / Accepted: 14 February 2024 / Published online: 28 March 2024 © The Author(s), under exclusive licence to Springer Nature B.V. 2024

Abstract Advances in neuroscience have enabled the transition of transcranial direct current stimulation (tDCS) from research and clinical settings to public use. For this primarily home-based context, tDCS has been popularized as a do-it-yourself (DIY) approach to improved cognition and wellness. The line between wellness and health is blurry, however, and little is known about how engagement with therapeutic tDCS impacts users' interactions with other interventions such as clinical consultations, pharmacotherapy, complementary medicine, and even other neurotechnology. To close this gap, we collected data from the online content aggregator Reddit and analyzed posts pertaining to tDCS. Findings indicate that most users turn to Reddit to request information about tDCS as an adjunct, but not as a bypass, to ongoing or prior approaches. Posts suggest that mainstream medical care is viewed as necessary but not sufficient to address conditions such as depression and anxiety. Users discuss a mix of benefits and harms. This discourse provides valuable insights into the health practices, concerns and priorities of users, and new

The views expressed in the submitted article are those of the authors alone.

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knowledge for informing applications of neurotechnology both inside and outside the therapeutic setting.

Keywords tDCS · Neuroethics · Brain and mental health

Transcranial direct current stimulation (tDCS) is a form of non-invasive brain stimulation. It involves the application of a weak electric current to the cerebral cortex through electrodes placed on the scalp, positioned in various montages to stimulate different areas of the brain. A 1–2 mA current creates an electric field that polarizes neuronal membranes in regions of the brain, thus altering the cortical excitability of neurons, analogous to long-term potentiation and depression [1–4]. A limited pool of professional providers administers tDCS [5, 6], and devices can be purchased online or constructed at minimal cost using basic electronic parts.

Since the time that tDCS became available in the early 2000s, research has primarily focused on healthy individuals and on individuals with neuropsychiatric conditions. Results from healthy research participants suggest that tDCS can enhance working memory, episodic memory, attention, decision making, and other cognitive functions [7–10]. Research with tDCS alone or in combination with other interventions for research participants with depression and anxiety has also pointed to beneficial effects believed to be associated with changes in neurochemistry [11–13]. For example, major depressive disorder (MDD) is associated with



decreased activity in the dorsolateral prefrontal cortex (DLPFC). Because tDCS can increase activity in the DLPFC, it may provide therapeutic effects for people with MDD [14]. In one large-scale randomized control trial, a combined benefit was observed between tDCS and sertraline, a medication used to treat depression and anxiety, in patients with MDD [15]. Segrave et al. [14] reported that tDCS paired with weekly cognitive control therapy (CCT), a neurocognitive intervention for MDD that uses computer-based working memory exercises, heightens the efficacy of treatment, although a similar study by Brunoni et al. [16] did not find a significant difference between an experimental group treated with tDCS and CCT, compared to a control group. tDCS has also been tested in the treatment of a wide range of neurologic conditions such as Tourette Syndrome and Alzheimer's Disease [13, 17]. Such varying results in these contexts are due to a multitude of factors, including the heterogeneity of the population being studied, synchronicity of treatment, and duration and intensity of stimulation, and are known to be accompanied by mild adverse risks such as scalp irritation at electrode sites, fatigue, and headache [18].

In a series of studies, Wexler showed that 43% of do-it-yourself (DIY) users perform tDCS to treat a medical or psychological disease or condition [19–21]. This constitutes significant uptake amongst DIY users, yet regulatory guidelines for therapeutic tDCS are limited and vary across countries and contexts. Health Canada, for example, has cleared tDCS for the treatment of a small set of specific disorders, including chronic pain and migraine headaches [22]; in the United States, the Food and Drug Administration permits physicians to provide treatment according to guidelines for off-label and investigational use of medical devices. tDCS is cleared for sale on the market as a device "for use... in the cure, mitigation, treatment, or prevention of disease" or "to affect the structure or any function of the body" [23–25].

We turned to online discourse about tDCS to explore the specific motivations of prospective and current users to engage with tDCS as a tool for mitigating symptoms of psychiatric or neurologic disorders on this patchy regulatory landscape. To our knowledge, the present study is the first explicit exploration of the motivations and strategies for non-recreational, therapeutic DIY tDCS. By studying personal accounts of therapeutic tDCS, we sought to gain insights that can inform good practices with tDCS and future policy.

Methods

Data Source

We used Reddit, a popular social media platform, as the source of raw data for this study. In 2021 alone, there were 366 million posts on this site [26]. The website is divided into more than 100,000 small communities called subreddits. Subreddits are dedicated to a single topic, and they act as messaging boards. Individuals can exchange health-related information on subreddits which are dedicated to specific conditions such as "r/depression." The subreddit "r/tdcs" has 18,000 members and is a platform for "discussing the science, technology, construction, and use of non-invasive brain stimulators" [27].

Search Strategy and Data Extraction

Posts containing the root "medi-" were collected from the subreddit r/tdcs over the five-year period from December 2017 through December 2022. Inclusion criteria required that a post: (1) was original, (2) referred to the individual posting or a dependent of the person posting, and (3) addressed tDCS in a medical context. Posts intended for marketing were excluded. User pseudonym, date of submission, number of comments, and correlated comment thread were extracted manually for analysis. Posts were transferred from Reddit to individual files in Microsoft Word. Files were catalogued by user pseudonym and managed in the qualitative coding software NVivo 11 (QSR International) [28].

Data Analysis

Posts were analyzed using deductive and inductive coding [29]. A priori themes were determined by a review of related literature and activity on the r/tdcs subreddit. Themes were refined and an initial codebook was created through discussion of the research team. We set clear guidelines for a priori themes for consistency across the data set. We used the phrase "mainstream medical system" to refer to practices based on the western model of diagnosing and treating disease, and "use pattern" to refer to the number of times that the user performs or performed tDCS. Author SS introduced inductive codes throughout the coding process to capture emergent themes and these were discussed iteratively with author JI for accuracy and clarity. A rich coding strategy allowed multiple codes to be attributed to a theme. Intercoder



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reliability between SS and a trained research assistant was determined using the Cohen K coefficient. Discrepancies were discussed until consensus was reached.

The primary outcomes from the analysis were use patterns by and key variables of interest to users about tDCS as determined from posts on a popular content aggregator. The secondary outcome is new knowledge about the use of tDCS as a means to circumvent conventional or other therapeutics or to complement them.

All posts may be viewed in Appendix 1 Table 5 and further analyzed for secondary purposes without restriction.

Results

Data Capture

Fifty-eight (58) posts meeting inclusion criteria were retained for analysis from a total of 69. Eleven (11) posts were omitted from analysis because did not meet inclusion criteria, as they were facsimiles or for marketing. Cohen K tests produced an unweighted K statistic of 0.9093, which indicated good reproducibility of the coding hierarchy [29].

Themes

Five overarching codes capture important aspects of users' tDCS experience and their interests regarding tDCS in concurrence or as an alternative to other medical interventions (Tables 1, 2).

Explicit and Implied Intent

The dominant explicit or implied purpose of users for posting was for information (54 posts [93%]). These requests came when users sought advice, data, or situation comparison (43 posts [74%], 6 posts [10%], 5 posts [9%], respectively). Users seeking advice posted about experiences with tDCS and requested responses pertaining to their personal situations. Users seeking data asked for other people's experiences with tDCS, or quantitative or qualitative results of research to inform their tDCS use. Users engaging in situation comparisons shared their firsthand experiences with the goals of comparing them with those of others. The other intent of users was to provide information (6 posts [10%]). Two posts provided data [3%] and 4 offered narratives about personal experience [7%].

Condition

Mental health was the most prevalent health category to which users referred (42 posts [73%]; Tables 3, 4). In total, 39 users [93% of "Mental Health" category] explored tDCS as treatment for depression, anxiety, or both. Users also considered tDCS as treatment for PTSD, OCD, bipolar, panic and mood disorders. Three [6%] posts were about neurologic conditions including TBI, Tourette Syndrome, and Alzheimer's Disease. ADHD accounted for 13 [93%] of 14 posts in the neurodevelopmental category. Users treated to abate a variety of other conditions, including sleep disturbances, chronic physical pain and illness.

Discovery and Characteristics of Use

Fifty-one users [88%] wrote that they were introduced to tDCS through personal research and 7 users [12%] through consultation with a professional within the mainstream medical system. Thirty-three people [57%] posted before trying tDCS. Two users [3%] tried tDCS a single time. Nineteen users [33%] reported repeated use of tDCS. Users referenced 14 unique tDCS devices. Homemade tDCS devices were mentioned in 3 posts [5%].

Treatment Details

Of those who provided information about their other treatments, most users expressed interest in doing tDCS concurrently with their ongoing clinical care, rather than as an alternative. Conversely, most users discussed using tDCS as an alternative to pharmaceuticals and other neurotechnology, rather than in conjunction.

Framing

We used the framing code to capture the perceived impact of therapeutic tDCS among users.

Seven users [35%] described benefits, 8 [40%] harms, and 5 [25%] both benefits and harms to tDCS. For example, User 26 states:

"I've been using the [...] device for about a month now for depression and anxiety. I've cut back on some of my medications, and I feel good."



Table 1 Frequency of themes and subthemes

Theme; Subthemes	No. (%) of posts $n = 58$
Purpose of Post	'
Request information	54 (93)
Advice	43 (74)
Data	6 (10)
Situation comparison	5 (9)
Provide information	6 (10)
Narrative, testimonial	4 (7)
Data	2 (3)
Conditions Treated with tDCS	
Mental Health	42 (73)
Depression & anxiety	21 (36)
Depression	10 (17)
Anxiety	8 (14)
Posttraumatic Stress Disorder (PTSD)	4 (7)
Obsessive Compulsive Disorder (OCD)	3 (5)
Mood	3 (5)
Other (Bipolar, panic disorder, addiction)	4 (7)
Neurologic	3 (6)
Traumatic Brain Injury (TBI)	1 (2)
Tourette Syndrome	1 (2)
Alzheimer's Disease	1 (2)
Neurodevelopmental	14 (24)
Attention Deficit Hyperactivity Disorder (ADHD)	13 (22)
Aspergers	1 (2)
Other	11 (19)
Sleep (insomnia, nightmares)	7 (12)
Chronic physical pain	2 (3)
Illness (COVID, inflammation)	2 (3)
Characteristics of Use	
Discovery	
Personal research	51 (88)
Clinical consultations	7 (12)
Use Pattern	54 (93)
Before use	33 (57)
Repeated use	19 (33)
Single use	2 (3)
Treatment Details – tDCS for Concurrent or Alternative Treatment	
Clinical consultations	16 (28)
Concurrent	13 (22)
Alternative	3 (5)
Pharmaceuticals	34 (59)
Concurrent	15 (26)
Alternative	19 (33)
Other neurotechnology	15 (26)
Concurrent	5 (9)
Alternative	10 (17)



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Table 1 (continued)	Theme; Subthemes	No. (%) of posts n = 58
	Complementary medicine	3 (5)
	Concurrent	2 (3)
	Alternative	1 (2)
	Framing – Values and Perspectives	
	Method (tDCS)	19 (33)
	Benefit	7 (12)
	Harm	8 (14)
	Mixed	5 (9)
	Clinical consultations	5 (9)
	Benefit	0 (0)
	Harm	4 (7)
	Mixed	1 (2)
	Pharmaceuticals	22 (38)
	Benefit	2 (3)
	Harm	12 (21)
	Mixed	8 (14)
	Other neurotechnology	8 (14)
	Benefit	7 (12)
	Harm	0 (0)
	Mixed	1 (2)

Table 2 Illustrative quotes for themes

Theme	Subtheme	Illustrative quote
Purpose for post (Intent)	Request information	Getting a bit overwhelmed with options and looking for some clarity with devices;
		I've read a lot but still not 100% sure on the best way to go for primarily focus (ADHD) and learning/ retention. Would welcome input [Reddit user 16]
Condition	Mental health	I suffer from depression & anxiety related to PTSD [Reddit user 10]
Characteristics of use	Use pattern	I'm on day three with tDCS device [Reddit user 17] 8 days isn't much, but I feel there are some changes happening. Too little time to really make a recommendation or qualify this as working, but these are my results so far [Reddit user 47]
Treatment details	Concurrent	I did some research about tDCS and would like to try my luck with it as an adjunct to my medication [Reddit user 39]
Framing	tDCS	Just to emphasize how dramatically tDCS affected me: Nothing before or since then has reduced my anxiety in the same way, [Reddit user 5] I felt slightly more anxious after [tDCS] [Reddit use 29]



Table 3 Within-category frequency of subthemes for condition

Condition	N. of posts	% of posts (total)	% of posts (in cat- egory)
Mental Health	42	73	
Depression & anxiety	21	36	50
Depression	10	17	24
Anxiety	8	14	19
Posttraumatic Stress Disorder (PTSD)	4	7	10
Obsessive Compulsive Disorder (OCD)	3	5	7
Mood	3	5	7
Other (Bipolar, panic disorder, addiction)	4	7	10
Neurologic	3	6	
Traumatic Brain Injury (TBI)	1	2	33
Tourette Syndrome	1	2	33
Alzheimer's Disease	1	2	33
Neurodevelopmental	14	24	
Attention Deficit Hyperactivity Disorder			
(ADHD)	13	22	93
Aspergers	1	1	7
Other	11	19	
Sleep (insomnia, nightmares)	7	12	64
Chronic physical pain	2	3	18
Illness (COVID, inflammation)	2	3	18

Table 4 Within-category frequency of subthemes for treatment details

Treatment details	N. of posts	% of posts (total)	% of posts (in cat- egory)
Clinical consultations	16	28	
Concurrent	13	22	81
Alternative	3	5	19
Pharmaceuticals	34	59	
Concurrent	15	26	44
Alternative	19	33	56
Other neurotechnology	15	26	
Concurrent	5	9	33
Alternative	10	17	67
Complementary medicine	3	5	
Concurrent	2	3	67
Alternative	1	2	33

By contrast, User 18 states:

"I have a really nice professional tDCS machine I bought as a desperation move a while back, and it has never done anything at all for me in any montage."

These sentiments reflect the diversity of users' framing of tDCS. For other neurotechnology, 7 users [88%] ascribed benefit and 1 user [12%] noted mixed benefit and harm. The framing of other neurotechnology was decisively positive among the limited sample of users who reported. User 36 states:

"No luck so far with tDCS. I did however briefly experience profound success with CES (cranial electrostimulation) ... It gave me hope that yes, my mind can still heal itself."

Discussion

Online communication platforms such as Reddit are rich sources of information about public interest and views on health. By analyzing posts containing the root "medi-" on the subreddit r/tdcs, we characterized practices and perspectives of treatment-focused tDCS users. We find that users primarily post to request information about adding



this method to a treatment scheme, but not to bypass it. They further inquire about the characteristics of different tDCS devices and their efficacy. Many users become interested in tDCS through personal research and find it difficult to access guidance about the neurotechnology through clinical consultations. Overall, posts suggest that users view mainstream medical care as necessary but not sufficient.

Users who provided medical information often included a disclaimer that encouraged individuals to consult a doctor in addition to online sources. We consider this to be significant because the quality of health-related online communication is known to have a low degree of reliability as amateur advice and misinformation circulates within echo-chambers. However, a warning at the top of the webpage addresses this concern, directing readers to seek professional help. It states:

"All non-invasive brain stimulation is experimental. There are much more proven methods for treating mental health and neurological problems. If you are concerned about some aspect of your mental or physical health, please consult a medical professional before using tDCS." [27].

We recognize the limitation of not being able to report demographic data as individuals post on Reddit under pseudonyms following the California Consumer Privacy Act (CCPA). Using Reddit as a data source also introduces selection bias because individuals with internet access in the USA, UK, and Canada between 18 to 49 years old are most active on the platform [30]. Therefore, the data may overrepresent the interests of this group of users, reported to be wealthy, highly educated and early adopters of technology [31]. The primary coder, a person who self-identifies as White and American, is also among this group. Posts are unverifiable, so they must be taken at face value. The sample size is limited to posts with a narrowly focused search root and constrained to a limited time window. The study focused on DIY tDCS for treatment purposes, so an analysis of recreational tDCS use was not included. Analysis of responses that would be valuable to close the loop of discourse was beyond the scope of this work.

Despite these limitations, the present study provides evidence that while DIY therapeutic tDCS is pursued and administered in combination with clinical care, users still turn to amateur users in online forums for information about device acquisition and use parameters. The implementation of an open communication and education approach for tDCS, such as the one practiced by the

USA Government for DIY biologists for example [19, 32], could address this paradox and encourage information flow between government, medical professionals, and the public for safer and better tDCS policy and outcomes for both recreational and health applications.

Conclusion

The results of this study fill a knowledge gap about tDCS: in the space of online Reddit discourse, users request information about the intervention as an adjunct to clinical care but do not seek a way to bypass conventional or other complementary medical treatment strategies per se. Nonetheless, on a landscape in which use is escalating but oversight is heterogeneous and historically slow to keep up with the pace of innovation, education and communication between the public and health professionals are needed to ensure the highest ethical standards of safety, appropriate application for condition and process, and transparency about benefits and risks. Online platforms can play a role here, but greater outreach through peer-reviewed research, public health programming, and mainstream medical care will further augment education and consultation on Reddit, especially for people who perceive that their neurologic and mental health conditions are not adequately addressed.

Acknowledgements The authors would like to thank Professor Anna Wexler for her valuable consultations on the development of this project, Harjeev Sudan for assistance with coding, and other members of Neuroethics Canada for feedback. Dr. Illes is UBC Distinguished University Scholar, and UBC Distinguished Scholar in Neuroethics supported by the North Family Foundation.

Declarations

Ethics Approval This research is exempt from ethics approval under Canada's Tri-Council Policy Statement 2 (2022) Article 2.2 which states, "Research does not require REB review when it relies exclusively on information that is ... in the public domain and the individuals to whom the information refers have no reasonable expectation of privacy." Reddit, the database used for our research, informs individuals that, "When you submit content (including a post, comment, or chat message) to a public part of the Services, any visitors to and users of our Services will be able to see that content, the username associated with the content, and the date and time you originally submitted the content. Reddit allows other sites to embed public Reddit content via our embed tools. Reddit also allows third parties to access public Reddit content via the Reddit API and other similar technologies." According to California Consumer Privacy Act (CCPA), individuals post on Reddit under pseudonyms to further protect their privacy.



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Appendix 1

Table 5 Posts analyzed

Users' Identifying Number	Post Title	Post Content
1	tDCS with ADHD?	Has anyone with ADHD had long term success with tDCS? Is this something that has to be done without medication or do can people use this therapy while on Wellbutrin?
2	tDCS for PTSD symptoms	I was diagnosed with PTSD two years ago and was able to work through the most obvious issues on my own. I had severe depression, nightmares, a stutter, etc. I no longer need medication and have a better support system. Now I am on a fairly even keel, but my quality of speech is still behind. I got rid of my stutter, but word recall, fluency, and speed are all reduced. I can type intelligently, but I can't speak intelligently. I get socially anxious and experience depersonalisation even on days when my mental health is otherwise fine—and it has had a huge impact on my confidence. Therapy has become redundant because I have already faced my trauma and take good care of myself, but my brain function is so inhibited that socialising and connecting with people feels impossible. Is this something tDCS can help with? I don't really experience depression, just flat affect, trouble speaking, and depersonalisation.
3	tDCS or CES for depression?	Hi, I'm new here. Over the past month or so, my depression has started to relapse, and medications have always made me feel terrible. I'm not current on any medication, and refuse to take antidepressants again, after horrible side effects that I've experienced in the past. I started reading about Fisher Wallace device, and I entered the rabbit whole of these electronic stimulation devices I want to try one to see if it will help with my depression and anxiety, but I'm starting to get anxious about all the options. Where do I begin? What do y'all recommend for depression primarily, anxiety secondary? Any help you could provide would be greatly appreciated.
4	What are the biggest risks of doing tDCS?	I recently ordered a Brain Driver 2.0 to try and help with anxiety and depression. Although a lot of people here have expressed positive outcomes, what are the biggest risks? I don't want to make shit worse, like had happened pretty much any time I've tried medication.
5	*Incredible*, temporary tDCS effects on anxiety/depression = accidental deep brain stimulation? Has this happened to anyone else?	Cursory internet research hasn't turned up many examples of what I experienced when I first tried tDCS. After lifelong anxiety and depression, tDCS turned me from a recluse into a social paragon in the span of a day. My hands would sweat and my heart would pound as I checked out at a grocery store. The day I tried tDCS I was excited to meet strangers, I looked forward to the future, and I actually liked myself. I was a radically different, better person for about 1.5 months—a time frame consistent with placebos, sure, but I don't think that adequately explains it, for uncomfortable reasons politely moved to the end*. I haven't been able to replicate the initial benefits since then. Recently I heard an account of someone's experience with deep brain stimulation, and it sounded similarly extreme to what I felt with tDCS. Immediate relief from lifelong mental illness. Insomnia. Increased social behavior. Mania before dialing in the current. The only explanations I can think of are: 1. This happens to loads of people and I just have terrible internet research skills 2. the medications I was tapering off of (for months prior ineffective) somehow 'potentiated' tDCS—bupropion and venlafaxine; I don't know enough about neurochemistry to guess at a mechanism 3. When I built my tDCS rig maybe I accidentally used a negligibly small resistor, effectively giving my brain the full 9 V voltage drop, or my homemade electrodes were terrible enough to somehow induce something closer to deep brain stimulation? I rebuilt my tDCS device to be safer when I wasn't depressed, then stopped noticing effects. I lost the original equipment so I can't check the resistor I first used. Anyway, has anyone else experienced such dramatic but temporary effects from tDCS? Also, how dangerous would it be to briefly peak above the accepted safety threshold for tDCS in an attempt to induce deep brain stimulation? The study linked below found that rats develop brain lesions at current densities> 140 A/m², but that's more than 100 x what I'm aim



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Users' Identifying Number	Post Title	Post Content
6	tDCS with low seizure threshold: very effective anxiety treat- ment, with safety questions	I built a very simple resistive circuit to try tDCS and it brought phenomenal improvement—within two days I changed from a recluse into an extrovert, I'd found my magic bullet and my anxiety and depression were gone. When I began tDCS I was tapering off of high doses of Wellbutrin (buproprion) and Effexor (venlafaxine) because they'd been ineffective on their own and had some concerning side effects, but about a month after quitting the medications tDCS slowly stopped working. I'm pretty confident the effects weren't natural mood fluctuation or placebo, because the effects were so profound and this experience was a very sharp peak amidst years of solid depression. Both buproprion and venlafaxine lower the seizure threshold, and it sort of makes intuitive sense that lowering neuronal activation energy would make tDCS more effective. From others' accounts there doesn't seem to be too much short-term risk in combining the medications and tDCS, but there's not much literature on the subject. Regardless, I'm considering starting buproprion and venlafaxine again and reattempting tDCS because I'm in a slow motion tailspin and that combination worked easily 10×better than anything else I've tried. Has anyone here has had a similar experience, or does anyone have words of wisdom to share? I'd appreciate any input.
7	new here, need advice please!!	Hi guys, I just recently discovered this technique for treating anxiety and insomnia and I'm curious to try it, but I still have so many doubts! The only device which appears to be certified for medical use in Europe is this https://flowneuroscience.com, but they say it doesn't treat anxiety, which is my main problem. Moreover you can't move the electrodes. Do you know other devices which are prescription free and can be sent to Europe? Have you also tried hybrid ces devices? Alternatively I've found a specialist who performs transcranial magnetic stimulation, have you ever tried it? Thanx a lot!
8	Does anyone know where I can get a used Alpha Stim for a reasonable price?	Any website for used Alpha Stim devices? I'm on a budget(Since I wasted a lot of money on talk therapy, CBD oil, \$140 blood tests for anxiety & medication to no avail) and I want to try Alpha Stim AID for anxiety. Sub \$200 would be perfect
9	What are ur Favorite Montages for TDCS & tACS/CES?	I'm curious what setups other bio hackers, people self medicating Etc are using, why, and their results. Seems some of the best ones, aren't as well known. I like DARPA F10 & deltoid w TDCS 3.5-4ma's to wake up in the AM, & increase energy, focus & learning speed Prefer around FP1, F3 or FC5, with the other electrode on OZ or O2 with a CES. It's variations of F1 anode & OZ cathode (alternative depression montage) and really helps w stress and keeping a positive mindset
10	Fisher-Wallace: how long for me to notice a difference?	I suffer from depression & anxiety related to PTSD & wanted to try a non-pharmacological approach along with my medicine that doesn't help completely. I just received it today but I was curious how long it takes to notice anything?
11	placement of electrodes for frontal temporal aphasia	We have purchased a TheBrainDriver tdcs v 2.1 but there is no instruction relative to placement of the electrodes for the subject ailment. This is an outside the box remedy effort for us as the medical community is not encouraging. Does anyone have some suggestions for this? Thank you
12	New to this ideatrying to digest so much info	I'm curious about DC and AC stimulation, but I have no idea how to determine which one is best for what conditions. I'm nearly always on edgeanxiety is my middle name. I need consistent patterns in my life or I can't remember diddly squat, then cue the anxiety when life makes me have to free-style. So I can't just go with the flow for long at all. I'll try, but the consequences are bad for me and my spouse. I get agitated, or morose and end up shutting down, sensory overload, or completely withdrawing to stop the simulation. (I'm also an introvert so extroverted moments and lots of talking and commotion really push me over the top) I'm also having a hard time focusing at work. My projects are difficult, tedious and require getting into the weeds. But I have to be able to be yanked out at a moments notice to work on something that's an emergency and utterly unrelated to the code I'm developing. So it's making me hesitant to dive into more difficult projects and I find myself goofing off instead of doing the hard stuff. I also wonder about a young kid in my friend circle. He's in elementary school and basically a hellion. He defies authority constantly, has zero impulse control. He's now trying things like burning down the house, and threatening other kidsthough the latter is pure posing at the moment because he's too young to really be violent. The school is considering expelling him. Can these stimulation devices give this child some semblance of typical self control reasonable for a 10 year old? Are these examples things that TACS or TDCS can help? Would one be better than the other for the above scenarios? Thank you
13	Teenager Use?	My teenage son is dealing with anxiety and depression to the point that he doesn't want to go to school. I even started him on prozac. It seemed to work for a few weeks and now a month in he told me he feels awful again. I ordered the fisher wallace for myself and would be willing to buy the alpha stim, but I'm not sure how safe they are for use by a minor? I'm desperate to help him cope with life.



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Users' Identifying Number	Post Title	Post Content
14	TDCS for ADHD and focus	I am looking for a device I can use in place of medication such as vyvanse so that I can use such medication less often. There are many devices at various price ranges. I am considering The Brain Stimulator. I was also considering FO.CUS, but heard about recent problem s and community concerns so I may forgo that option. I've also heard the APEX A is good as well a the stimulator from SSD. Over \$200 would be expensive for me and Ideally not over \$150. I would like to hear some suggestions here on what I can use for my specific situation. Thank you in advance.
15	60% reduction of OCD symptoms using Accelerated HD-tDCS for rapid response in treatment- resistant obsessive–compulsive disorder	https://www.brainstimjrnl.com/article/S1935-861X(22)00181-4/fulltext In the discussion authors mention is unlikely its because of medications as they start working only after few weeks
16	Getting a bit overwhelmed with options and looking for some clarity with devices; Alpha Stim, BumbleBee or other? tDCS, CES, tACS? I've read a lot but still not 100% sure on the best way to go for primarily focus (ADHD) and learning/retention. Trying to make a bit more sense of everything I've read	I've seen the excellent lists of devices on this sub and I reference it often, especially a recent thread (https://www.reddit.com/r/tDCS/comments/mxcfj4/comprehensive_summary_of_tdcs_devices/) from a few months ago. I read that people love the BumbleBee devices but they're a tACS or CES device right? I guess my question is; if money was no object—do I go for a device like the Focus V3 that has different stimulation modes or something used in real medical studies like the Alpha-Stim? For ADHD and learning, should I look for a tDCS, CES, or tACS device? Just trying to take everything I've read and make a bit more sense of it! Thank you!
17	Stopping tDCS after 3 days?	Hello. I'm on day three with tDCS device and the anxiety is too much. Anyone had increased anxiety with tDCS? Will it just be back to before if I stop at day three?
18	Research / experiences using tDCS "backwards"?	Medical Diagnosis: Aspergers (Mild), ADHD, Bipolar II undefined Subjective current major issue: Feeling of anxiety / being near panic attacks makes me avoidant of any stressors to an extreme degree. Like I avoid getting voicemail for weeks. I have a really nice professional tDCS machine I bought as a desperation move a while back, and it has never done anything at all for me in any montage. Recently I've found out that Gabapentin really helps when taken 150 mg every half hour for 8–12 h. This in combination with Kratom got me to a place where I was able to open a pile of old physical mail. (Yes, I know how stupid that sounds, it does to me too.) I ran across this post regarding Gabapentin on reddit: "It's exact mechanism of how it effects each of these disorders isn't known but in general it slows the transmission of sodium channels on nerves. Your nerves fire and transmit their signals to each other by transporting sodium (and potassium) across its membrane. So by slowing sodium it slows the nerve from sending its signal. [] It is quite literally slowing your brain down." This makes me think of experiences I've read about here about people reversing the polarity by accident and feeling "slow" I wonder if, for me, that'd actually be the correct therapeutic thing to do. Anyone have experiences using their tDCS machine "backwards" on purpose over a span of time, or know of studies? Or would doing this be really stupid, likely to produce long-term mental retardation or something?
19	This is the tDCS paper I intend to share with my psychiatrist	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5977072/ He's glad it seems to be helping and wants me to continue — though he's still advocating for rTMS sessions, since it has more documented evidence — but I think I want him to see this which is a good review of the best studies on the effectiveness of tDCS on major depressive disorder (MDD). To wit: "With regard to MDD, the majority of meta-analyses have found that tDCS is superior to sham stimulation with an effectcomparable to that of repetitive transcranial magnetic stimulation (rTMS) and antidepressant medication"



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Table 5 (continued)

Users' Identifying

Number	
20	My first 3.5 weeks experience with tDCS for depression
	[long]

Post Title

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I'm typing this with electrodes attached to my head, 2.0 mA coursing through my neurons. I had been lurking here for a few months, trying to decide if tDCS was a worthwhile treatment. My bupropion for the last 9 years seemed to "raise my floor" in terms of my mood, but it did nothing to increase my motivation or decrease my fatigue. I only know that, for the 5–6 months I stayed off of it as a trial at jumpstarting it back again, I was hit with an even deeper depression than I'd perhaps ever known. So bupropion (and Vyvanse, for attention issues and in the hope of addressing the fatigue) seem to be necessary, but not sufficient.

My psychiatrist, who had long been skeptical of anything outside the most hidebound pharmaceuticalbased (or, in desperate cases, ECT-based) therapies, has been paying attention to recent studies and has changed his thinking on several approaches. I mentioned some of the reading I'd done on microdosing of psychedelics, and he said he would approve me for a trial study if I could find one to get in. (I did some research, but nothing much looking for participants seemed to be going on locally at the moment, despite this being New York City.) He said that, given the research he'd been reading, he'd even prescribe ketamine once it becomes on-label for psychiatrists to use that way in the U.S. So, basically, he's open to new approaches, but is cautious about them. He wants to see my annual blood test results to make sure whatever he's prescribing me isn't adversely affecting my liver or kidnevs, for example.

Among the research that had changed his mind is reports on rTMS. He said he would definitely make a referral for me to a clinic for this 20–30 min treatment (5 days a week, for 6 weeks) and encouraged me to look into its availability where I live (suburbs) and to what extent my insurance would cover it. After looking into it myself, I said I would, but that first I wanted to give this tDCS a try. It was far less expensive, far less of a time commitment (since it's done at home), yet seemed to target the same regions of the brain as rTMS through a not-unrelated biochemical/bioelectrical mechanism, and with some caution, seemed safe. He said I had his blessing to give it a try. (I also started microdosing lithium orotate at the same time – just 5 mg day, though I may go up to 10 – which isn't even 1% of what they start people out on lithium in the hospital where he also works, but his attitude was "It couldn't hurt.")

So in lurking here and comparing reviews and commentary online, I ended up getting an SSD 12–24 Selectable Voltage Device. So every day for the past 26 days, I've started my morning off with 20–30 min of ~2.0 mA using 24v. How it's gone so far:

Except for one time I had to miss a morning so did it in the evening, I've done it before noon every morning.

My very first session was on the morning of my weekly therapist and monthly psychiatrist appointments. I showed them both the Super Specific Device device (the name cracks me up, I guess). I admitted that I may have just bought a \$150 placebo machine, but that even after an initial 20 min session, I couldn't be sure that it hadn't affected..."something."

My therapist observed that, in the 9+he's been seeing me, I seemed more "enthusiastic, or animated" than ever before. I wouldn't say so compared to my other clients, but compared to how you normally present, I might even go so far as to say 'manic,'" he said. I allowed as how, again, that could be primarily placebo effect or just the excitement of feeling like I might have found a help in getting past the plateau I've been on for so long. (I believe among native speakers in the land of the emotionally resilient, that feeling is known as "hope." I may be misusing the term.)

I admitted up front that I was muddying my own utility as an n = 1 study among tDCS users, because just a couple of days before I got the SSD 12-24 SVD, I had received my initial order of lithium orotate and had started taking that a few hours before bedtime. Online comments had mostly talked about how it had helped with the quality of people's sleep, and I noticed a slight improvement as well, I think. Given that a good night's sleep alone can improve one's Hamilton Depression Rating Scale score by 7 points, it could have been – could still be, only more so; see below re: glycine – this. So not only did I not double-blind myself to see how effective tDCS was or wasn't, I mixed in too many other (small?) variables at the same time to offer more than my own subjective "insights."

I almost introduced even more. On day 6, I think it was, I started wondering if I might find a greater immediate effect than the montage I'd been using if I switched to another one. I didn't, and in fact it was the first day where I felt like my old, pre-tDCS self. Nothing drastic, and I was able to enjoy eating out that evening (a very rare event for me these days), but enough to figure that my original montage was the one to stick with.

However, I also had seen advice that said to consider whether 1 mA (or 0.5 or 1.5, etc.) might be more effective for some people or some montages as 2 mA. So on Day 7, I went back to my original montage, but at half (1 mA) my usual "dose" (2 mA). This was maybe more effective than my off-montage trial of the day before, but it still seemed like a step backward and certainly not contributing to a cumulative effect as the previous week had started to feel, so on Day 8, I returned to my usual montage....which was: +DLPFC (F3), -Supra Orbital (Fp2). (My one day of an alternate montage used + F3, -F4.) += anode;—=cathode

After a few days of messing with the gauzy bandage wraps to hold the electrodes in place, I went to using an old ball cap with an adjustable opening in the back for the wires. (The slobby kind; the front of the hat isn't reinforced, the way most actual ball caps are, so it sits against my freakishly shaped head better anyway.) I applied Velcro strips to the back of each electrode and had intended to sew the other side into the cap at my F3 and Fp2 positions, but it's holding them secure enough, I haven't bothered to so far. Best I can deduce from diagrams, instructions, measuring my own head, etc., F3 sits just below and to the left of the cap's front-left air eyelet, and Fp2 is basically under the hat band, above the right eyebrow. If anyone has a different insight into how they find and refind these positions for themselves, I'd be glad to hear it.



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Table 5 (continued)

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The SSD 12–24 SVD came with two sets of sponges and two batteries. I have so far used only the first set of sponges, but can see where I may need to swap them out once I reach a full month of use. We'll see. I haven't noticed any rust, which I've seen some people refer to, but one of them has developed some black spots on one side. I've been taking them out of the electrode after each use and propping them on end to dry, but I see someone recommending rinsing them out and blotting any excess water with a towel to speed the drying, so I may start to do that, or do that once a week or so. The black spots may be rust, burn marks, dye from the hat or black rubber of the electrode, or mold...I dunno. For what it's worth, these are black, not brown, and they look more like mold than rust. I tried using alcohol-based hand sanitizer, thinking that might kill the mold, but it didn't. I may try some white vinegar, just to see. In any event, I can see these sponges won't last forever, but the black smudge hasn't really gotten worse.

For saline, I'm using Simply Saline from Arm & Hammer. It's sold as a "nasal mist" (and I've bought it for that in the driest days of winter or the dustiest days of summer), but as a combination of sterile water, sodium chloride, and sodium bicarbonate, it seems the right ratio of sodium to water for conducting electricity. As an added bonus, it sprays evenly over the sponge and I only need to spray one side to dampen the whole sponge. Since my first can is nearing its end, I can estimate that one can will last about one month. (And before anyone even asks: no, I am not using the same can for my nose as for my electrode sponges, so that isn't what the black stuff on the one side of one sponge is.)

- After two weeks of finding it beneficial (excepting my two-day foray into alternate montages and amperages), but because I can't resist tweaking what's working, I made a few other changes:
- 1. further increased the time from 20 to 30 min (usually)
- started taking 3 g of glycine before bed as well, again to help with the sleep. The two seem to be working, as I haven't had to use an Ambien since combining 3 g of glycine with 5 mg lithium orotate
- 3. Have also been sleeping with these coils under the pillow while "playing" (these get used in the headphone jack) some of the frequency files I downloaded at diypemf.com
- I guess I'm throwing everything I can that may be additive, not conflictual, in improving my depression. And I think it is. In a similar way as antidepressants can take up to six weeks to effect changes in neurochemistry, the changes with tDCS are subtle (pace that Day 1 "mania" that hardly was, honestly), but I think real. All the rest of it except maybe the glycine, which did help the sleep the most I'm less convinced of the value, but I'm sticking with it for now.
- I see my psychiatrist next week, at which point it will have been a month. I'm going to stick with this tDCS for as long as it seems to be helping, and if it stalls, plateaus, reverses, whatever, I'll then start to look into a clinic for rTMS treatment. I'm not sure if zapping my brain every morning is improving my motivation and focus or if it is improving my depression to the point where I can be more aware of how limiting my lack of motivation and focus are, if that makes sense. Sort of like the black box warning they had to put on antidepressants, especially for adolescents, wherein their depression seemed to be alleviated to the point where they were able to have the motivation to carry out their suicide, which is a horrible irony. Not what I'm dealing with here, really, just using that as a medical analogy in explaining what feels like it's going on.

Reactions, questions, approbations, opprobrium?

Deciding between neurofeedback and TDCS

- Is there any way to evaluate which one of these modalities will work before sinking a lot of money into them? At the very least, is there a way of assessing TDCS protocols that should be used? I have linked up with a TDCS provider, but he says the only way to know is to try it. That seems like a fairly insubstantial basis.
- I have a combination of mood, anxiety and attention symptoms that have responded insufficiently to lifestyle, medications and therapy. My attention issues are largely executive function issues, with a large VIQ and PIQ discrepancy. I have difficulty planning and directing myself in line with goals.
- My mood and anxiety symptoms consist of large mood swings between hopefulness and hopelessness as my attention is so variable. I have suicidal thoughts in my lowest moments.
- Would welcome input. I know the research is not as established, and there may not be clear ways to evaluate, but I'm hoping there are clearer ways to assess potential benefit than just trying and seeing.

Thanks.

tDCS for Panic Disorder

This will be my first attempt using tDCS. My panic disorder has become completely incapacitating. I have an ApeX Type A 2 mA. I intend to follow the case study here, anode on left deltoid, cathode on F4, using home made 0.9% saline solution and medical tape to affix the pads. 2 mA for thirty minutes a day, for ten days.

Does anyone have further suggestions?



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23	Have any of you experienced with longer/ more intense sessions, and what effects did you experience (I'll go first)?	I recently saw that to enhance the effects of tdcs you could stimulate an area for 20 min, wait 20 min and then stimulate it again for 20 min. I thought I would try that, but instead of waiting 20 min I would use that time to stimulate another region:) Since I want to improve my general cognition, executive function (and to a lesser extend my emotional regulation), I targeted the dlpfc. -> 20 min of 2 ma anode F3, cathode on the shoulder -> 20 min of 2 ma anode F4, cathode on the shoulder -> 20 min of 2 ma anode F4, cathode on the shoulder In total the stimulation lasted for 1 h and 20 min. Tdcs is not very effective immediately, especially after only one session, so the placebo effect cannot be excluded. But anyways here is my experience: 1)I was very clear headed and alert. I typically have some form of inattentiveness so being able to focus for once was a relief. I was "here" 2)I was more productive. When I wanted to do something (I am learning mathematics) I was able to do it for much longer without feeling an urge to watch some youtube 3)Even though I was more alert I was also paradoxically calmer 4)I felt motivated 5)My sleep was worse. I had a harder time falling asleep and staying asleep These effects persisted up to one day later. All of these effects resemble that of stimulant medication like methylphenidate or adderall. My friend, who was depressed last year used tdcs to get better (he only did a couple sessions and told me that it didn't do anything, looking back now he tells me that he was more active, concentrated during the week he used the tdcs but that the effect was subtle and that he only noticed it when it faded away). Anyways he also did long tdcs sessions (up to 1 h and 30 min at once, F3 + F4-) and he always reported feeling very tired after these sessions, but also that the day after he felt better. What is your experience folks?
24	Tourette's	Hi, I have Tourette's and was recently advised to try tDCS by my doctor (medication has been ineffective and I don't want to go into the heavy hitting drugs). I am thinking of trying the ActivaDose tDCS, the Focus V3, or the Device or the TCT research clinical version. Any advice on which might be more suitable for me, and has anyone had setups or techniques that work for Tourette's or OCD?
25	Important tDCS and SSRI interaction	Hi, all. Wanted to call attention to some studies showing a potentially important effect on tDCS-induced neuroplasticity from serotonin-enhancing medications: https://www.sciencedirect.com/science/article/abs/pii/S0006322309004223 https://www.nature.com/articles/npp2015270 https://academic.oup.com/ijnp/article/24/10/787/6295455 The gist is that: (1) serotonin enhancement seems to augment anodal stimulation by extending the window of increased excitability/plasticity post-treatment up to at least several hours (vs the usual 1–2 h). (2) Perhaps more importantly for this community, serotonin enhancement seems to flip the effect at the cathode from inhibitory to excitatory. So if you're on such medications, or have recently quit them, you may need consider your electrode placement more carefully, lest you accidentally increase excitability in an area you were trying to quiet down (I wonder if this could explain some of the atypical negative effects some have reported on this forum). You may also need to be more careful about what you do not just during stimulation and shortly afterward, but for the rest of the day (wouldn't advise stimulating in the morning if you know you've got a stressful day at work ahead). Make sure you're using this big plasticity window to lock in good thoughts, vibes, and behaviors. I've been taking 25 mg Zembrin every other day for about a month and have just acquired an Activa-Dose II, so I suppose I'll have some personal data to report soon.
26	New here and looking for help	Hi there. I've been using the Fisher Wallace device for about a month now for depression and anxiety. I've cut back on some of my medications and I feel good, but then I was wondering if I can use this thing to help my memory or hunger lol. Has anyone tried using stimulation to help boost your memory? I'm getting older and I know that can lead to memory loss, but I think being on all these antidepressants for over 20 years hasn't helped that part of my brain either. I've read that you can try to stimulate parts of your brain for weight loss too, but I'm not sure how true that is. Please try to respond in simple terms since I've only been looking into this option for a couple of months so I'm not sure of all the terms yet. Thanks!



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27	tDCS vs TMS vs ?? for Brain Fog— newbie question!	Hi all! I posted in r/rTMS and r/BrainFog similar questions, but upon discovery of tDCS I saw there's a much larger community here. I'm strongly considering starting a round of TMS, but have recently been spooked by possible side effects that aren't mentioned in the general marketing of the treatment. Ive heard good things about tDCS, but how does it really compare in terms of efficacy and safety? I've been diagnosed with depression, although personally I think 15 years of brain fog with no answers led to depression, not the other way around. But I also feel like I gave it an honest shot at treatment after years of therapy and various medications. It really does feel like if I could just give my brain a massage then this would all go away. But it sounds like this stuff is still largely experimental? How easy is it to hurt myself if I don't know what I'm doing?
28	tDCS lost efficacy (anxiety and depression)	Hello Reddit! This is my first post so I'm sorry if I'm doing anything wrong. Compared to the other online accounts I've read, I've had an unusual tDCS experience and I was hoping that you might be able to provide insight, or that I might at least provide some useful information. I'd very much appreciate any input you have. Have you ever heard of tDCS working astonishingly well and becoming ineffective over the course of a month or so without any changes to the procedure?? Do you have any suggestions for improving tDCS efficacy, or anything that might be similarly effective for treatment resistant anxiety and depression? The only thing I've stumbled across is transcranial magnetic stimulation but there are no local options for that. I've kept amperage, electrode placement, polarity, session length, session activities, and everything I can think of constant, but now observe absolutely zero change in the hours and days following sessions. Background (It;dr below) I'm an engineer in my early twenties at a large technology company, and I've struggled with severe social anxiety and complimentary depression since childhood. I graduated summa cum laude from a challenging engineering school but within 10 months at a new job I was put on probation for poor performance — not remembering things and working slowly due to mental health problems. I was diagnosed with social anxiety disorder and major depressive disorder, and for years I had tried therapy (mostly CBT), medications (literally dozens, for the recommended 4–8 weeks each), and just slogging through it, but nothing even remotely worked. I built a tDCS device from schematics online and the benefits were unbelievable. I was cured — feeling not a trace of the crippling anxiety and depression I'd come to accept as normaley — and I made enormous strides in weeks. These days were the best days of my life. I was a different person, an alternate reality me that actually enjoyed meeting how to reate art and music I was proud of. I felt truly alive and my apathy for l



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29	Anxiety Montage	I know it's still early, but was hoping to get some advice or encouragement. I like many have been living and fighting with anxiety since my 20 s. The last few years it has been out of control. I treated with a psychiatrist and medication for the last 2 years but the meds made me feel off and not myself. I did a very slow taper off of the effexor and it was hell and still dealing with mood swings, etc. as its only been 3 weeks off completely. After much research, I came across the tdcs option. I ordered the braindiver unit and started last Sunday. I did the one montage with both on the forehead at the appropriate locations. I felt slightly more anxious after and thought maybe it was in my head as I tend to over think and throw myself into a state. I tried a different montage where they go behind the ears and that one sent me into total panic and felt very amped up and did come across a poster experiencing this senatoon and suggested doing the montage that I've, for the past few days have been doing which is the black in the center back of the head and red over left eye. I do not experience any weird anxious feelings doing this one, but anything higher than 1.0 amps I get strange stinging sensation and overall no change in my mood/anxiety. My anxiety is just as high next day. I know I need to give it time, but just was so hopeful after reading some of these posts of the almost immediate success. I think I want to go back to the forehead placements and stay at a lower Amp and work up but wondering if anyone had serious success with this one. I feel like the higher I went the more anxiety I felt and some tingling. Is it common to experience those types of side effects initially? I can't really find anything online about that. Mostly articles on reduction of anxiety from tdcs not getting increased anxiety from using it. Just looking for some support and advice. I am seriously desperate to get this under control without medication and know there are other factors that contribute to these feelings I have daily,
30	Just bought the braindriver look- ing for suggestions	Hey everyone I've been majorly depressed for the better part of 20 years off and on. I have been diagnosed with bipolar depression. I am seemingly medication resistant and have been recommended by doctors to do ECT, but I'm kinda scared. I found this tDCS product the other day and decided to try it out first. I'm brand new to the world of tDCS and hope to have good results. Could anyone point me in the right direction to start learning more about the placements for depression/bipolar/anxiety/ mood disorder montages? Can I do more than one treatment a day? Like one for depression, and one for exercise, or concentration? Should I only do one a day? Every other day?? I have no idea!! Please give me any advice you think I could use, and maybe some stories of success and encouragement. Thanks!
31	Heads up	Hi there, A question to those working on device projects in EU or shipping devices in EU: You probably read that according to the new medical device regulation (MDR) annex XVI, all electrical or magnetic stimulation products will be considered medical devices, even if your device doesn't have a medical purpose. Are you planning to follow the regulation or just see how the implementation of the law is playing out?
32	Buying / importing tDCS device in India?	My problems: I've been under treatment for Depression, Anxiety and Insomnia for over four years now. I've taken medication, which in recent months has caused a lot of side effects. I do get sleep but I'm usually super groggy when I wake up. I'm not productive at all. My memory (of the last 6–8 years has significant gaps) and I'm having trouble forming new memories. I tend to forget stuff very easily. It has been affecting my academics. I've gone from a straight A in high school to failing multiple classes in college. Tbh, I don't know if it's because of my illness or I've just become lazy. Nonetheless, I'm desperate. And I want to try tDCS. I need help regarding: As far as I know, there's no online vendor that sells tDCS devices in India. I've been told to explore tACS (bumblebee in particular). My budget is around 150–200 USD. If there's anywhere in India where I can get a tDCS or tACS devices, please let me know. If the only option is importing, where can I get it? Will my budget cover the product + shipping + customs charges? Will companies ship products to India during this COVID situation? Again, I'm desperate. Please help. Thanks. Edit: I've found a 'Brain Premier' device on Amazon India that's within my budget. If anyone has used this device before, please let me know if it's effective.
33	Can anyone with more scientific education translate?	https://www.ncbi.nlm.nih.gov/pubmed/15142961 I'm wondering if I can use tdcs while on medication(dextroamphetamine) hence this. I use liftid headset.
34	Looking into tDCS for ADHD	Hello, I'm a 30 yr f looking into getting treatment for my suspected ADHD. I'm getting some brain scanning work done soon to hopefully confirm a diagnosis, but the doctor I am seeing specializes in tDCS and frankly I can't find anything concrete about it online! Rather, I can't find any solid patient reviews of the process. If I do have ADHD, she wants to see me twice a week for these tDCS sessions. Has anyone else gone through this treatment for ADHD, especially in comparison to medication? Any suggestions on what to look out for? Any advice greatly appreciated!



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35	What's the difference between tDCS device and Alpha-Stim in regards to treatment of depres- sion and anxiety	Can anyone report on this I've seen that alpha stims are at a much higher cost and require an RX so I'm wondering what's the effectiveness and differences.
36	Those of you with ADHD or general anxiety, what montages works/do not work for you and with what settings?	I apologize if I narrowed down my question to only those above. But given the vast amount of montages, time spent on them, different mAh setting as well as using different polarity, I feel you can wander around ages looking for certain answers. For me, ADHD together with anxiety makes every single minute feel like a constant battlefieldit makes it easy to get discouraged from doing even the most "simple" thing medication does not work so I will keep experimenting with tDCS and would appreciate any experiences from the guys above! My own experience ADHD: I tried couple of montages including those specified in ADHD research but haven't had success. My own experience ANXIETY: No luck so far with tDCS. I did however briefly experience profound success with CES (cranial electrostimulation). I discontinued after couple of weeks and returned the device because it was very expensive. But the change I felt was very much real and even if it lasted for only that evening it put my mind at ease. It gave me hope that yes, my mind can still heal itself. My brain could literally (and that is a word I use sparsely) not latch on to negative thoughts. And that gave me a much needed room for quietnessI'm hoping to find myself in a similar state in the future with tDCS! I know CES is a different technique, but it targeted the vagus nerve and I will be on the look out and try to read about montages that might stimulate that area.
37	Desperately Need Advice	Hello just joined Without going into to much detail, I've been addicted/treated with medications for 20 years For various reasons I can't tolerate them anymore so am looking for alternative methods to help treat recent medication withdrawal symptoms & a possible underlying brain disfunction that together are causing depression/fatigue, severe anxiety & panic/fear symptoms I bought the ActivaDoseII rTDCS machine & have been trying different montages for a week now with little if no positive results the classic F3 FP2 seems to make me aggressive can you please advice on alternative montages for those symptoms? Also, the ActivaDose goes upto 4ma /80v I've been doing 30 min a day sessions at 2ma/40v do you think doing more than 1 session a day is advisable & does upping amps & volts increase the effect? Thx in advance ps I've also got truehope.com products do you think it's safe to use both at the same time?
38	Caputron ActivaDose II Issue and Question	So I'm not sure if this is the right sub to ask this question but I figured someone might be able to offer some advice. I purchased the ActivaDose II by Caputron not that long ago (2 months?) I've only tested out two montage positions that I found on the totaltdcs website. The "Depression and Anxiety" montage where the anode is placed on the left DLPFC (F3) and cathode on right supraorbital (FP2)The "DARPA" montage where the anode is placed on right temple and cathode place on left should/ forearm I have used the former much more than the latter as I really haven't seen much benefit from the DARPA montage. Anyway, this device is suppose to be able to support up to 4.0 mA which it did in the beginning. I personally found 4.0 mA to be too uncomfortable as it had a itchy burning sensation. My dose experiments where 1.5/2.0/2.5/3.0/3.5 mA when using the Depression and Anxiety montage. I've noticed some benefits—namely a sense of calm and relaxation—although oddly that was more noticeable with the DARPA montage. Well here is the problem I have encountered—all of sudden the device no longer can go above 2.5 mA; if I attempt to have it go to 2.6 mA + a noticeable electrical current pulses and the devices safety mechanism shuts it down. It's annoying but atleast I am still able to use it and honestly I don't know if there is actually any benefit from using high mA. But does anyone know what could be causing this? I have a feeling it's related to the battery but I honestly have no clue. My other question is a little different—for those that aren't familiar with this device it's electrodes are these neat sponge inserts that require saline solution. I originally purchased the 3 × 3 one because I thought that might be easier since I was a novice with this technology. Having had ECT before I remember that my doctors used these adhesive gel electrodes—I don't know much about the difference between the electrode types but I believe I have read they are much more accurate in terms of precise location and current dosage.
39	which tDCS devices are the best ones right now?	Hey. I'm currently treated for treatment resistant depression and social anxiety with Parnate (MAOI antidepressant) and the results are great so far but I feel like I'm not 100% in remission and did some research about tDCS and would like to try my luck with it as an adjunct to my medication before going on higher doses. Im looking for a high quality brand that is available in the market and not super complex to use for a newbie. Price is secondary, I'd rather pay more for my health 's safety. Any recommendations are appreciated.



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40	Should I do tDCS myself or get it done by specialists?	I have started to undergo tDCS at a neuromodulation center. I recently got diagnosed with inattentive type ADD at 23 and I wanted to try alternative methods before considering medication. I have massive brainfog and problems with attention, short term memory and feel like my brain is always lagging, it's hard for me to recall words on the spot that I want to use in a sentence. I was and still am thinking about whether tDCS or neurofeedback would be better for me. At the center, the neuropsychologists swear by this tDCS and told me it is their most reliable method for getting results. They said my brainfog can almost fully disappear and my focus would probably get better and my thoughts would feel more organized. I asked about neurofeedback, and while they do it, they didn't seem quite enthusiastic about it while i have seen multiple times that people swear by neurofeedback for add. The treatment for tDCS costs me 80 euros per session, so all together the whole treatment would be over 1200 euros. So far I have undergone one session—tomorrow is my next. Anyway, my question is: What would you guys advise to paying this much money for tDCS or is it something I could do myself at home with a device? And if so, is it as reliable as having it done by experts? (and its not even the experts doing it to me, its their assistants). The money I'm losing, let's say, if it works it is fully worth it to me, but I definitely feel the burn of it, as I'm still a student. I saw the device being used by them, and it honestly seemed like something one could do at home, as they didn't really do much to monitor me, they just put in some settings and left me for 20 min (frontal) and then 20 min (parietal). EDIT: I must add to this that they are using Soterix medical devices.
41	Complete noob here	So my mom just ordered the Brain Driver tDCS machine and I'm curious about the best placements for depression, social anxiety, and insomnia. I'm 20 days off of a strong opiate medication and hoping this helps with PAWS symptoms. Also, my son suffers from depression and has outbursts of anger. Any advice is appreciated. Thank you. EDIT: I'm also having bad neck and lower back pain as well what is a good placement for those?
42	Fibromyalgia and Chronic Fatigue Syndrome Pain C3 +/ C4- for 30 Days Analysis	Fibromyalgia and Chronic Fatigue Syndrome Pain C3 + / C4- Final Analysis Background: I have Myalgic Encephalomyelitis also known as Chronic Fatigue Syndrome. My type gives me severe full body pain in all of the muscles of my body the pain ranges from 3 to a 10, rare but it happens, this is all while medicated. The pain is just like Fibromyalgia and some believe the two might be the same disease. It has been getting worse and I raised my pain meds last doctor visit. I was taking Kratom 6 mg or Tramadol every 3 h (6×per day) and I was also taking 100 mg of Lyrica 4×per day. I just want everyone to understand where I started pain wise before trying this process. I am trying this in order to reduce or eliminate pain. Device: Apex 4 mA 18 V tDCS device Montage: C3+/C4- Time: 30 min per session Duration: 30 days Results 10 Days: I can report that I definitely felt a reduction in pain. Before I started I was taking pain medication every 3 h and it would last around 2 1/2 h. At 2 1/2 h I was uncomfortable, pain level 6 or 7, but would force myself to wait to 3 h. After I completed the above session I would say my overall pain levels reduced probably 20% to 25% overall. There were times during the last few days of the 10 days that sometimes I didn't take my pain meds until the 4 h mark which definitely wasn't happening in the month before I started the tDCS. I didn't really start feeling any results until day 6 or 7. Results 30 days: My pain levels have continued to decline. I can say for the first time in many, many years I decreased my pain medication. During the past week I have completely stopped taking Lyr- ica. I am still taking Kratom or Tramadol but sometimes I skip dose now. I am no longer counting the minutes until my next dose for the pain to go away. Overall I am guessing my pain is reduced by 40% to 55% depending on the day. Seeing as nothing has helped my pain, except adding more drugs in the past 12+years, this is a huge success for me. I am very pleased with the results for sure! Starting today I am g



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43	tDCS for OCD?	Hello, folks Im going to do 20 sessions of TDCS for OCD and depression. Has anybody did it especially for OCD issues? My OCD is severe, very very severe, it started when I was 3 years old. It is very severe but not treatment resistant, Luvox 250 mg brought me decent relief. At the moment Im off medication and in an incredibly bad place. Im about to start medication again if Neurofeedback, tdcs and maybe TMS afterwards dont show any results. Ive found a few studies that look promising but some of them seemed to be "overhyped" (80% OCD reduction, would be incredible but I have my doubts as other studies showed benefits in thw 25–40% reduction range. Anyways, Ive found this study but it doesnt look to promising: https://www.cambridge.org/core/journals/european-psychiatry/artic le/transcranial-direct-current-stimulation-in-patients-with-obsessive-compulsive-disorder-a-rando mized-controlled-trial/609630E6B0C14EB3109DB9A307BFC56F "Despite significant acute effects, tDCS with the cathode placed over the left OFC and the anode placed over the right cerebellum was not significantly effective in inducing a long-lasting reduction of symptoms in patients with treatment-resistant OCD." Im really hesistant to even do those 20 sessions when all I get is a huge short term reduction and 1–3 months later Im a square one What are your thoughts?
44	Anyone cured major depression with tdcs ?	n/a
45	Alpha Stim, chronic pain, and anxiety	I have questions for others who have tried using the Alpha Stim for pain relief. I also have questions related to anxiety. Did it/does it help your pain? How long did it take you to feel improvement? Did it/does it increase your anxiety? If so, did you have to adjust any meds you were on? I've started using mine for chronic back pain, and haven't really felt any relief. It's been about two months. I'll use the 4 electrodes, set the machine to its highest setting, and go about my day. I don't mind wearing it, so sometimes it'll be on for 10 + hours. Then I'd usually do an ear-clip session afterwards. I can't handle that one very high, only about a 1. Otherwise I'm nauseous, seasick and have a headache. I've noticed a huge increase in anxiety. My naturopath says that if you have trauma (oh boy do I ever- it's being treated with EMDR and I've had a lot of success) that it'll be like peeling an onion- trauma and feelings will come up while using it. And that if your anxiety increases, you probably have too much medication in your system. So, WTF do I do? I feel like the Alpha Stim has shown me a Costco sized warehouse of shitty feelings I've crammed into my body over the last 40 years that need to be let out and I'm very overwhelmed. And still in pain. My anxiety was so well controlled with my SSRI up until now. Do I go off of it? That's a serious undertaking. I have an appointment with my psychiatrist in a few weeks and I'll be asking her. If this is what Alpha Stim is like while taking an SSRI I might not be able to handle it. I just really really really don't want to be in such constant pain. I also REALLY don't want to take opiates. I can't get my pain dr to take me seriously. My ortho won't take me seriously until the pain dr does. I've done PT, and it made it SO MUCH WORSE. I have some MRI's waiting to get approved but I'm guessing they won't help much. I know this is probably trapped trauma in my body. Another reason Alpha Stim is a good choice for this particular pain. But I can't function like t
46	Immune System Montage?	Can anyone recommend placements for helping the brain boost the immune system? I may have Covid and want to know if I can use my TDCS to help me fight this off. Thanks!



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47	tDCS for anxiety and depression 1 week	I've had problems with depression and anxiety/ptsd since I was a teenager. Been on at least 9 different medications over my 40 year life so far, with periods of no medication at all. It's been a rough shitty rollercoaster ride that I've wanted to end many times. I've previously completed a full 36 session course of rTMS. it worked well for me while I was getting the treatments. After about a week or so, I felt spectacular. It was like my soul was existing in a new brain and body. Unfortunately, I backslid near the end of the course and continued on a downward trajectory in the following months in terms of anxity/depression symptoms. Definitely better off than before, but not where I wanted to be. A second course is an option, but the out of pocket copay cost is pretty high for me, and there's a strong possibility I'll be laid off or change jobs soon. I need to be saving right now due to all the uncertainty. I researched tDCS extensively, many of the concepts/unknowns are similar to rTMS, so I decided to give it a shot. I purchased a higher end unit (though I know it's 15 bucks worth of electrical parts and I'm a electronics hobbyist, I wanted something that "just worked" out of the box"). I'm on day 8. I've been using the common anxiety/depression montage. 2ma for 20 min. No effects after day 1–2. A bit of apprehension with the slight warm/burning sensation, and occasional white flashes in my right eye, along with the weird occassional muscle twitching. It's not comfortable but not uncomfortable (nowhere near rTMS levels at least). Day 3 felt something of a stimulating effect which has persisted until now. Days 5–6 both the stimulating effect and I feel like my mood has improved slightly. I haven't had the similar "wake up pain" and angst that some depressed people describe, same effect with the rTMS. No changes to diet or routine, though I took a benadryl on nights 6 and 7 as allergies are getting bad. I don't have the wild dreams or fatigue like I did with rTMS. A slight increase in appetite which was al
48	New to TDCS. Has anyone tried the brain driver v2?	Edit: Day 1 I took 1ma for 20 min, day 2 was 1.5ma for 20 min. Subsequently 2ma. Have been going through depression and anxiety as well possible ADD? Not exactly sure but my attention span isnt the best and neither is my memory. My only hope is this at this point. Tried medication for both depression and anxiety but they ultimately made me feel numb and very quiet for some reason. But to cut this short I would like to know if anyone who has tried TDCS please let me know your experiences with it.
49	Just Purchased Fisher-Wallace Stim Device- Advice Needed (Insomnia and recent MDD)	Hi everyone. A few months ago I got diagnosed with MDD which the dr said could very well have been a new development. I have struggled with situational depression but after a few car accidents and the pandemic there was no end to most recent bout. I have been on Trintillex for two months and it's, ok. I no longer have my low Lows but it hasn't helped with executive functioning and my appetite is out of control. I used to take Wellbutrin because a therapist told me everyone should be on an antidepressant and I thought it would help with adhd. It made me a robot. I have had insomnia for two decades and a long term use of sleeping pills (right now moving between belsomra and Lunesta due to insurance issues). I have tried to get off sleeping pills but I just won't sleep- even on keto and with exercise. I've also added a low grade muscle relaxer to my nighttime regime due to my recent car wrecks and melatonin. I am not anti medication but would prefer an alternative if possible. Can this work for me? I know YMMV and there's no such thing as a magic bullet but would love to hear what to expect if anyone has had similar diagnoses.
50	not tDCS, chronicles of modified TENS unit for CES and tVNS	Since there's no subreddit for CES or tVNS, I thought I'd record my experiences with making a low-cost home device that has a similar mechanism and a bunch of research showing its effectiveness for treating depression, insomnia and anxiety. I first got a CES/tVNS/EMP VNS in a clinical setting and experienced what I would consider 'miraculous' results for treating acute anxiety and depression, my symptoms went away completely after a single session and the results lasted about a week. I'm also getting neurofeedback training there. Since I can't afford to do these regularly, I started investigating home units. Using an 'Intensity Micro Combo' with ear clip electrodes and conductive gel (total cost: \$45 + \$9 + \$5 = \$59), I was able to get observably positive results. The settings are: Microcurrent-Constant, pulse width 200 ms, pulse rate 0.5 Hz, 20 min, current 100 microamps. I applied conductive gel to the ear clip electrodes, and clipped one to each ear out of one channel. This is comparable to the CES FDA approved medical device called Alpha-Stim, the only difference being the wave form. I hope to be getting an Alpa-Stim to compare with soon. The effects are less noticeable than the clinical treatment, but seem promising less any placebo effects. I felt relaxed, light-hearted and happy after a single treatment. I will be trying a modified ear clip electrode on the tragus for tVNS. I'll update my experiences here when I have them.
51	Can someone with major depression and anxiety disorder use the tDCS?	If so, do they need to stop taking their medications in order to get a better affect?
52	tDCS clinic/doctor in western US?	Does anybody know of any medical providers of tDCS treatment in the western US region? Universities, clinics, individual doctors, etc.?



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53	Does anyone know of any research done using +50 mA?	I've only recently come across this amazing concept of neuromodulation using tDCS. Some background I have ADHD and a previous SPECT brain scan showed hypoperfusion of my left DLPFC during concentration tasks not surprisingly. Therefore, when I first learned of tDCS I was excited to try it out. As a newbie not knowing very much, I didn't want to jump all in yet and buy an expensive device. I already had a TENS unit and wanted to see what would happen if using the relevant montage WOW! It undoubtedly had a noticeably good and lasting effect after only one 30 min session. The device's intensity was labeled with numbers of 1–8 so I went up to what I could feel but still felt comfortable. I did two more sessions with the TENS unit until I got a proper tDCS device. Later, I learned the TENS level I was using was about 65 mA!:S obviously waaay higher than standard tDCS use. Well after these 3 sessions with the TENS, it was like I had taken my medication even though I hadn't taken anything. My mental strength for concentration continues to feel strong without stimulant medication going on longer than 2 months now! This absolutely amazes me as I've had to be on ADHD medications for over 20 years. The proper tDCS device only goes up to the common level of 2 mA, but I'm finding that it doesn't seem to have as strong a noticeable immediate effect compared to when I used the stronger TENS unit. Going up this continuum, typically, the electrical stimulus used in ECT is about 800 mA. So I'm just wondering if anyone knows of research done with electrical stimulation that's stronger than typical tDCS but nothing as extreme as ECT Thank you!!!
54	Help with TDCS montage for depression	I have an Apex Type A 18 V 2MA edition, but I haven't used it yet. Apart from depression, I have a medical condition which causes extreme debilitating fatigue and major brain fog, and this has meant I haven't got the mental energy to wade through all the info online and work this out on my own. So I hope you can answer my questions — What is the best montage for depression with anhedonia and suicidal ideation? (I also have ADHD PI, but I think this should probably be treated separately). How do I accurately measure where to put the anode and cathode? Can I eyeball it from the pictures, or do I have to measure precisely? How often should I use the device, and for how long? Can I use it indefinitely, or should it be more like a course?
55	Anode AND Cathode on same tragus for Transcutaneous vagus nerve stimulation?	While I'm not sure I buy polyvagal theory, I've read about great results from stimulating the vagus nerve, but most of the pictures just show ONE clip on the tragus of the ear. If that's the Anode, where is the Cathode? Should I put both on my left ear? (Supposedly the right tragus has nerves that go to the heart so it should be avoidedthough I have seen tcds where they had the connections on each earlobe—not vagus related). **Today, I got a small TENS unit for vagus nerve stimulation and then I got an APEX A tcds stimulation (using the depression/anxiety motage and perhaps f3+/f4-). "Transcutaneous vagus nerve stimulation (tVNS) tVNS was performed using a TENS machine (V-TENS Plus, Body Clock Health Care Ltd, United Kingdom in studies 1 and 2 and EMS7500 Roscoe Medical in study 3) with customised auricular electrode clips attached on the inner and outer surface of the tragus of the ear
56	Can Transcranial direct current stimulation (tDCS) help with potential circadian rhythm issue?	My brain doesn't turn on till early afternoon, almost without fail. AM Exercising, full nights sleep, light exposure, caffeine, eating, fasting, stimulant medication (prescribed)- nothing does the trick (Edit: these were all done as separate attempts) I'm not groggy. By all accounts I'm awake and active, but my brain just isn't there. Brain fog, memory retrieval trouble, hard time linear processing. I'm just really slow. Then in the early afternoon the lights come on. Sometimes I can actually feel it happening, my brain just got wakes up and is normal. If I took stimulant medication in the morning this is when I would feel it take effect. My thought is that it could be a circadian rhythm thing. I think I'm naturally a night owl, but I'm forced to sleep normal hours when my brain might prefer to stay up later and sleep in longer. who knows if that's actually what's happening. tDCS is meant to stimulate the brain and help with depression and mood disorders. Could it also be used to wake my brain up in the morning?
57	Best neurostimulation device you've found for improving cognitive impairment/neuro- inflammation from chronic illness and post Traumatic Brain Injury?	As the title suggests I'm looking for a powerful mofo to give me significant therapeutic benefit from using a TDCS or TMS device over a 1–6 month period. Something that works like the TMS device in the Stanford study would be loovely, as I'd imagine if it's so effective for treatment resistant depression it's got to be very good at reducing neuroinflammation, microglia activation too, etc.



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day, low sleep quality, weak memory—what should I try? day, low sleep quality (wakes up after 5–6 h, feeling tired) and my memory feels as if I m devel ing Alzheimer (that's something I tell myself sometimes). I'm 30yo and in the past 8 years I'we worked through many of my emotional issues, thinking this will improve my cognitive abilities overall feelings. A few months ago, I started Neurofeedback training, with some noticeable progress. I've seen improvement in some aspect, but for the first time in my life I could understand what the hell is going on with me, my qEEG showed low energy in many regions (Cz, c3/c4, Pz, p3/p4, Fz and on) in comparison to the database my therapist was using. Since then I met with different neurofeedback therapists and had a chance to receive a few treatmen with the NeuroField set of devices which involves pEMF, tACS/tDCS and a 19 channels neurofeedback all together. This had positive results on my overall energy level (according to qEEG) overall feeling. It is an aggressive treatment but it does wonders. I had a protocol that attaches tACS to my left shoulder and my head to work on the vagus nerve. Every treatment costs around \$250 which is very expensive (I was told I need around 30–40 treatments). I was thinking why not buy a tACS/tDCS device to use at home and have some of the benefits, devices are between 300–1100s, this can save a lot of money and reduce the need in a therapist (which I need to travel abroad for). I'd like to receive some help for someone in my condition, what kind of devices should I look for CES/tDCS/tACS? I read that the fisher wallace CES device is not really targeting the same way as I had in my treatment and I'm trying to think if I should go for a CES device or a regular tDCS or maybe a device wit both functionalities. I need to train around Cz/C3-C4 as well to increase my energy there and hopefully improve my A ADHD/forgetfulness/memory issues/Fogginess. I might incorporate neurofeedback as well if I find that the stimulation is helping.	58	low energy, low sleep quality, weak memory—what should	worked through many of my emotional issues, thinking this will improve my cognitive abilities and overall feelings. A few months ago, I started Neurofeedback training, with some noticeable progress. I've seen improvement in some aspect, but for the first time in my life I could understand what the hell is going on with me, my qEEG showed low energy in many regions (Cz, c3/c4, Pz, p3/p4, Fz and so on) in comparison to the database my therapist was using. Since then I met with different neurofeedback therapists and had a chance to receive a few treatments with the NeuroField set of devices which involves pEMF, tACS/tDCS and a 19 channels neurofeedback all together. This had positive results on my overall energy level (according to qEEG) and overall feeling. It is an aggressive treatment but it does wonders. I had a protocol that attaches tACS to my left shoulder and my head to work on the vagus nerve. Every treatment costs around \$250 which is very expensive (I was told I need around 30–40 treatments). I was thinking why not buy a tACS/tDCS device to use at home and have some of the benefits, devices are between 300–1100\$, this can save a lot of money and reduce the need in a therapist (which I need to travel abroad for). I'd like to receive some help for someone in my condition, what kind of devices should I look for? CES/tDCS/tACS? I read that the fisher wallace CES device is not really targeting the same way as I had in my treatment, and I'm trying to think if I should go for a CES device or a regular tDCS or maybe a device with both functionalities. I need to train around Cz/C3-C4 as well to increase my energy there and hopefully improve my ADD/ADH/forgetfulness/memory issues/Fogginess. I might incorporate neurofeedback as well to it seems like a gimmick more than a medical device



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