

**Brain Expansion and Marketing Concerns**

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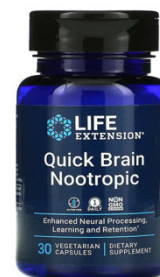
## **Chapter 1: Introduction**

Since the creation of life and humans on earth, the brain has developed in ways we still cannot understand. Evolution has in fact been the stepping stone for research on brain development and enhancement through the existence of humankind. One question has yet to be answered to its full potential and lurks in the minds of neuroscientists and researchers worldwide: How do we unlock the full capacity of their mind, while being able to function exceptionally better than the average human? Exploring the brain has and never will be an easy task, as there are things we have yet to discover. Every cell has a special meaning to our bodies and brain. Exploring more and more drugs and supplements each year, scientists and specialists have claimed to be able to enhance one's mind, but is this possible?

Brain expansion supplements and other devices have been around and promoted on shelves for decades now. As you walk through your local health shop or even grocery store, you will see many supplements with the word "enhancer" blown up on the label. Now assuming scientist and brain specialist have not yet released their secret formula for their evolutionary brain expansion products yet, there's no truth behind the thousands of pill bottles or supplements that insist their products can enhance brain functions. This set off red flags and alarms in the eyes of many, including researchers, medical professionals, and, especially, neuroscientists, as the health risk to consumers is never-ending. The question is are these promoted and marketed products real, and what are the health risks?

Advertisers and manufactures have been able to slip under the radar for years while they promote false information and dangerous nootropics and other drugs for human and public use. While there are many different ways to promote brain enhancement, from puzzle books, applications, shock devices, and, lastly, supplements, these marketers have taken advantage of

medical breakthroughs that have led to the discovery of drugs that in fact do have the ability to improve focus and memory for a short period, while the drug is flowing throughout the brain and blood of the test subject or, in our case, the average consumer. The question is just simply *how*? How have advertisers and manufactures used "brain expanding" to market products over the years, from herbal supplements to puzzle books to apps and devices, all the while never really promoting the truth or health risk associated with their products.



*Figure 1 Brain Nootropic*  
*Note. Source:*  
 (pureformulas, n.d)

### **Research Question(s)**

This research aims to dive deep into the world of brain expansion. Along with looking at the topic as a whole, we will touch on the basic functions of the brain, such as memory and other cognitive functions, that are said to be able to “self-enhance.” We will also be analyzing the different ways “brain expansion” is possible. With that being said, we will also be exploring the marketing side of things as too many companies and manufacturers have falsely claimed their products as “Brain Enhancers” or “Brain Expanders” when that may be far from the truth, and in reality, they may just be creating more underlining health problems for users.

This study was done for a few reasons: first, to point out just how companies and manufacturers of self-proclaiming “brain enhancement” products, are ripping through the marketplace putting millions of people at risk since most of these products actually are proven not to have brain enhancement capabilities and have been seen to have worrisome side effects to users. Along with the other side of things, this thesis question can provide information and advice for people looking into the scientific side of things within the brain enhancement field, in

light of which products actually can see results and what should be done to actually enhance the human brain if it becomes possible.

Ahead will be numerous studies and results based on articles from neuroscientists and experts on just how possible “brain expansion” is to the public, and how supplements and other devices falsely claim “brain enhancement”, to the public markets when they may be dangerous and raise health issues. I will be using numerous articles, journals, experiment results, discussions, and novels based on these topics to dive deep into just how this problem came to be and how serious it is along with how marketers can do it and keep up.

The outcomes I plan to seek will be those in which should shock readers and myself. I expect the outcomes to be somewhat scandalous at some certain points, but overall, I expect to find a lot of research, studies, cases, clinical trials, and lab results based on experiments, supplements, nootropics, and marketing tactics used in this type of situation. These results should shock the audience and public eye, as there could be real health issues to arise from issues talked about within this Honors Thesis paper.

### **Significance of the Study**

This contribution connects two fields on the side of neuroscience and neurology, all while connecting it back to the marketing side of things. By doing this I truly believe this study will enhance the way we look and brain enhancement as a whole.

### **Definitions**

*Brain expansion*: refers to the use of drugs or devices for non–health-related improvement of cognition. (Cognitive Enhancement, 2015).

*Nootropics*: Supplements that help to improve cognitive performance and brain wellness. (Pro, 2022).

*Neuroscience*: the scientific study of the nervous system and the brain. (*Cambridge Dictionary*, 2023)

*Cognitive function*: the performance of the mental processes of perception, learning, memory, understanding, awareness, reasoning, judgment, intuition, and language. (*APA Dictionary of Psychology*, n.d.-b)

*Brain stimulants*: A type of drug that increases the levels of certain chemicals in the brain and increases alertness, attention, energy, and physical activity. Central nervous system stimulants also raise blood pressure and increase heart rate and breathing rate. (*NCI Dictionary of Cancer Terms*, n.d.)

## **Limitations**

Limitations for this research study included data analysis and time, due to the fact of new data being found, making it difficult to place and set up an order of information and sources just yet, along with starting the introduction due to the topic having numerous ways to go about introducing it via text/on paper. Other limitations include a lack of information on the marking side, making it harder to interpret and analyze data to date.

## Chapter 2: Methodology

### **Research Tools**

For my honors thesis report, I used numerous tools to find and located sources for my paper. First and foremost, I started online using databases and libraries such as MIT Press Direct, Gale OneFile Psychology, and Google Scholar. Along with those I also have used numerous articles from databases from Anna Maria College and Penn State University. With the two school databases, I also have used the actual library to check out books and novels related to my thesis topics and subtopics. A few of the search terms in which I used for this thesis paper were; “Mind” “enhancing” “drugs”, “Nootropics” “brain” “capacity”, “Brain” “expansion” and “hypothesis.”

For my thesis inclusion/exclusion criteria, I tried to keep the sources from a more relevant and closer-dated time frame, from 2017 to present. For this thesis, it was crucial to find new and relevant timed information to support my idea and statements. For sample sizes relevant to the testing data inside my thesis done by other scientists and researchers, I have kept the sample sizes down to below 15, as it would be too hard to compare results with any more than that in a specific testing research collection. All of my sources have been peer-reviewed and have been published by highly educated professionals. This did also include all articles or sources being written in English and from sources with either a medical or scientific titled author.

It was not the easiest to find new and completely relevant information on this topic, as it is a topic that can shoot out many different directions depending on how you put your own spin on it. I found that research and test results for this topic came at very few results, but had great information and significant results to put to use. Overall, can be seen as a pitfall, but I found when you connect the dots after gathering all your sources and research elements, things started to all make sense and come together nicely. One article could support another or vice versa. To

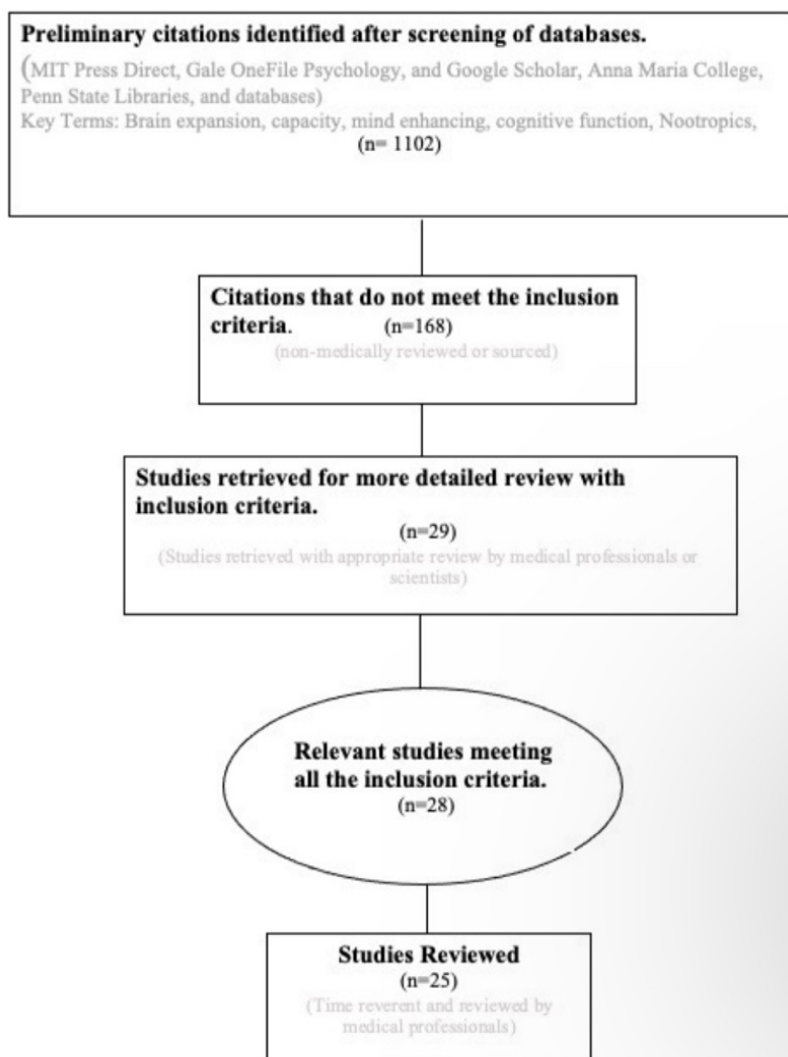
go along with that success, brain expansions, and a healthy mind is a new trend in today's world, making it easier to find and seek out relevant information for background and subtopic usage, to tie everything together. Overall, this research had very few pitfalls if any at all, and had a great amount of success once looked at and understood in the right place.



## Chapter 3: Literary Review

### Introduction

The human brain has evolved in mysterious ways since the dawn of time, and its full potential is still largely unknown. Researchers are constantly seeking to understand how the brain functions and how it can be enhanced to unlock its full capacity. Although there have been



*Figure 2. Flow Chart*

claims that drugs and supplements can enhance brain function, the truth behind these products is still unknown. With the rise of brain expansion supplements and other devices, the marketing and promotion of these products have become a source of profit for unethical manufacturers, but the health risks associated with these products are yet to be fully understood.

In recent years, advertisers and manufacturers have found ways to promote brain enhancement products unethically, creating a market for potentially harmful nootropics and other drugs. While some drugs have been discovered to improve focus and memory temporarily, the long-term health risks associated with these products are largely unknown. Moreover, many

products marketed as brain enhancers are simply ineffective, and consumers are often left in the dark about the truth behind these products. As a result, researchers and medical professionals are becoming increasingly concerned about the health risks associated with these products and the unethical marketing tactics used by their manufacturers.

### **Brain Capacity and Cognitive Function Enhancement**

Since the beginning of time, it has been man's quest to become better and stronger in body and mind. Through evolution and throughout the decades where mankind's genetic code has been modified to build the bodies we have today. Even with bodily changes, including facial structure, muscle development, and height. Having enhanced brain capacity and cognitive



*Figure 3. Brain Enhancement*  
*Note. Source: (Outlookindia, n.d)*

function would mean you could be limitless. The opportunities with what you could now do and understand would now be something some can only dream of. A bigger brain calls for a lot more understanding, memory, function, and much more.

According to research, “In the last few million years, the hominin brain more than tripled in size” (Muthukrishna et al., 2018).

This means the human brain has changed and has grown over the last few million years, giving scientists and researchers hope for a brighter future, including smarter and bigger minds. This leads to the other side of this situation. Some other scientists and researchers have also decided they don't want to just wait for the future, to be able to see changes in the brain concerning brain capacity and cognitive function enhancements. This at one time was just an idea to the public. The idea of brain enhancement wasn't always around or public knowledge.

This all changed when a series of Blockbuster movies, such as *Lucy*, *Limitless*, and the *Limitless* limited series. People were now interested in what expanding brain capacity and cognitive functions could do for them. Even scientists have wanted in on the action.

1,400 scientists, from 60 different countries were all included in a survey type study in which they were asked, *have they use brain-enhancing drugs for non-medical reasons with the goal increase performance, focus, memory, and concentration?* The results of this study were conducted and posted by specialist at *Nature.com* and included that “over 20% admitted using brain-enhancing drugs for non-medical reasons — to increase focus, memory, and concentration” (Maher, 2008). Many see it as making one a superhuman, which isn’t true but isn’t entirely false. It comes down to neuroplasticity. Neuroplasticity can easily be described as a continuous process allowing short-term, medium-term, and long-term remodeling of the neuronosynaptic organization to optimize the functioning of neural networks during phylogenesis, ontogeny, and physiologic learning following brain injury. In other words, neuroscientists have simplified the word for better understanding, referring to it as “the capacity of the central nervous system to undergo structural and functional reorganization in response to the environment, its afferent stimuli, and efferent demands” (Christiansen & Siebner, 2022).

Improving neuroplasticity enables one to use their neurons to create now larger and stronger neuropathways, leading to increases in many things such as memory, focus, and other cognitive functions. Neuroenhancement is just another term for the idea of brain enhancement and can be described as “the targeted enhancement and extension of cognitive and affective abilities based on an understanding of their underlying neurobiology” (Battleday & Brem, 2015). Brain expansion has and will always sound confusing. The phrase, “We only use 10% of our

brain,” couldn’t be more false. With research and trials being run out for years, all existing data shows that we use 100% of our brains. Scientist have searched for answers for decades to the exact amount of brain capacity a human has, and have now stated, “The maximum capacity of the brain is around 2.5 petabytes or around one million gigabytes” (Cherry, 2023). The brain is and always will be the most complex piece of matter the earth will ever see. Unsurprisingly, people have wanted to understand and manipulate it for centuries, some for good reasons and some for the wrong reasons. Today, it evident that more and more grounds seem to be interested in brain enhancement, “the US military spends \$100 million annually looking for ways to overcome this “weakness,” to help personnel stay mentally sharp while reducing their need for sleep.” (Alban, 2022). With countries militaries even stepping into the game, spending millions to try to keep its members in top shape, while improving their memory, focus, production, and overall cognitive skills, it’s not far-fetched to say that in this lifetime, we could see brain enhancement kick off and become a simple operation or thing as the world has introduced something called smart drugs.

### **Expansion trials, research, and Nootropics**

Smart drugs (commonly referred to as “Nootropics”) have been growing in popularity more recently. Scientists and medical researchers have found a way to include the perfect amount of many drugs combined to create a super pill of some sort. These pills are said to increase “memory, attention, creativity, or motivation through their action on neurotransmitters (i.e., dopaminergic, glutamatergic/cholinergic, and serotonergic systems), hormones, transduction systems, and brain metabolism” (Medrano, et al, 2022).

These smart drugs have found themselves locked in with athletes as well as they can enhance one's performance. There are many types of nootropics available to the public in today’s

society. Common ones include coffee, tea, ashwagandha, caffeine, ginseng, and ginkgo. Then the deeper, more in-depth ones, such as “CDP-choline, L-theanine, creatine monohydrate, Bacopa monnieri, huperzine A, and vinpocetine.” (Brody 2022). The way many nootropics work can be explained in a very simple manner. For example, one of the most used and researched nootropic drugs, caffeine works by “blocking the action of adenosine, a natural brain chemical that promotes sleep” (*Do Smart Drugs Work?*, 2018). These vital new drug compounds have seemed to give off a lot of promises, but at what cost? These drugs seem to have only a few setbacks, but these compounds haven’t had enough time to be proven safe or accurate at doing what they are supposed to do, and that is safely improving brain function and cognitive function, and skills.

There are many other ways people have found ways to enhance one’s brain or at least try. The “do-it-yourself” (DIY) brain stimulation movement began in earnest in late 2011 (Wexler, 2017). This movement has seen products such as electroshock and even all the way to puzzle games for children and adults be put on the shelves to promote cognitive function improvements and overall brain function health. There are and have been all of these brain training games on the market, which have pretty much been promoting the same things as other devices or even smart drugs/nootropics have been able to do for one’s mind. With the new technological advances in medicine and basic technology, it’s no surprise that the “market is still thriving, with \$67 million in sales in North America in 2015 alone” (Wexler, 2017). With such a high market for these different types of so-called enhancers, one must question how safe these can really be and who is just putting products onto the shelves or online to make quick cash without stopping to think about health concerns.

## Marketing nootropic drugs to the public & Health concerns.

With the rise of nootropics and other non-FDA-approved drugs infiltrating the market, it is said that the “nootropic market size will grow to nearly \$5.8 billion by 2023” (Roe, Venkataraman. 2021). Young adults and now students have been seen using and experimenting nootropics to get an edge on schoolwork or other daily assignments. With access to “prescription drugs, such as modafinil, amphetamine, and methylphenidate are used off-label by healthy people who do not have specific deficits but want to improve their standards of intellectual and cognitive performance” (Napoletano et al., 2020).

It is no surprise that there are falsely advertised products and supplements in that market. The expression “not everything is what it seems” fits perfectly here, as these life-changing products can be seen at almost every coinvent store, gas station, supermarket, or grocery store, with the words “Brain Booster”, as shown in *Figure 2*. Stores like Walmart, Target, Wegmans, and even pharmaceutical retailers such as Rite Aid, Walgreens, and CVS, all carry branded brain or cognitive function enhancers. The question is, are these the real deal, and are they safe?

Many dangers come with nootropic drugs.

Because these drugs are so new to the market, there is a lot of uncertainty about the short and long-term effects of these stimulants. The three major concerns include addiction, unapproved harmful substances, and mental and physical health symptoms. Stimulants are known for being highly addictive. In nootropic drug research, researchers found that “Nootropic addiction is characterized by a compulsive need to use these drugs and the experience of difficult withdrawal symptoms when the drugs are not used”



*Figure 4. Nootropic Drug Compounds*  
 Note. Source: (Purely Optimal, n.d)

(AddCounsel, 2021). This means that once people start using these drugs, it is difficult for them to stop. Addiction can be a serious problem and can cause dependence. The next concern is the unapproved harmful substances found in nootropics. Researchers closely examined different types of nootropics and said, “They included analogs of a drug called piracetam, as well as three other unapproved drugs: vinpocetine, phenibut, and picamilon” (Spinelli, 2020). They found that the doses of these drugs were four times higher than what was considered a normal dose. This could be extremely harmful to nootropic users and even cause death. The last major danger regarding nootropics is mental and physical health symptoms. According to two researchers, Deborah Quinn and Sarah Fletcher, in the article titled “Smart Drug Abuse Facts - Young Adults,” nootropics can cause short-term effects, such as insomnia, anxiety, headaches, nausea, and confusion, and also long-term effects, such as brain damage, heart disease, depression, paranoia, and seizures. Although these drugs are new to the market and little research has been done, they still are known to carry these frightening effects with them. They have not been proven safe, and most of them are not FDA-approved. Even with certain compounds and nootropic drugs being stated as “safe” for use, among those products with drug quantities provided and printed on the label, “75% (9/12) of declared quantities were inaccurate” (Cohen et al., 2021). Which can lead many consumers to be “exposed to up to four-fold greater than pharmaceutical dosages and as many as 4 unapproved drugs when using individual products.” (Cohen et al., 2021). When it comes to people looking into nootropics and the benefits they provide, they must also be aware of the dangers and negative effects they have on the human body.

Marketers and retailers either seem to disregard the fact that many of these drugs seen on store shelves, online stores, social media, and even on television, pose a real health risk. The fact

of the matter is the market which was once around 4 billion dollars, has now sparked into an industry high of “more than \$40 billion, with more than 50,000 — and possibly as many as 80,000 or even more — different products available to consumers,” (Hamilton, 2021). We truly do not know the benefits or the full scale of the dangers and risks they pose to consumers. How can they put such a new product with potential dangers on a shelf for anyone to grab? To start, there is currently no age restriction on these types of over-the-counter (OTC) drugs or supplements. Meaning anyone could grab one such product, take it to self check out, or even online and have it soon after. This simply relays back to the FDA as they allow this under the Preserving Patient Access to Medically Necessary Drugs.

It stated under the Preserving Patient Access to Medically Necessary Drugs, from the FDA that “the agency permits some unapproved drugs to be marketed if they are relied on by health care professionals to treat serious medical conditions when there is no FDA-approved drug to treat the condition, or there is insufficient supply of FDA-approved drugs” (FDA.2021).

Following this measure from the FDA, “loopholes in current law allow cognition-enhancing drugs to be marketed as dietary supplements or to be prescribed for off-label enhancement use without adequate safety and efficacy data” (Mehlman, 2004). This allows for these types of drugs which can now be seen in stores, to be sold cheaper, and without approval, leaving the marketplace with these possible dangerous drugs and supplements on the shelves, and also money in companies’ and marketers’ pockets from producing and selling these compounds. “Over-the-counter cognitive supplements are popular because they promise a sharper mind” (Spinelli, 2020). The popularity of these products allows companies to market thee freely without approval and following guidelines. Skipping all the necessary steps to keep the consumers risk at a low is something Congress itself has deemed unnecessary as they have



“authorized the FDA to accept less-than-complete efficacy data” (Mehlman, 2004). The rise of these drugs and supplements claiming to be brain or cognitive function enhancers are making headlines, with numerous reports of harmful side effects and even harmful chemicals inside the mind-altering capsules or powders. With the risk of these being so high, why do they continue to sell?

## **Chapter 4: Discussion**

### **Summary**

It has been said for centuries now that the brain has hidden capabilities that only a select few have been able to tap into overtime. Brain expansion is an idea only studied by a particular group of researchers scattered across the globe. It can be spoke of shortly as the ability to enhance one's mind and increase the cognitive functions of the brain. One may only dream of such a discovery or chance. Can one expand and enhance their brain power and capacity? This has been a question left in the dark for most of society as it may not matter to most. With brain expansion methods being in the forms of different unapproved drugs, supplements and handheld devices, or even toys, this leaves the question of, how have advertisers and manufacturers used "brain expanding" to market products over the years, from herbal supplements to puzzle books to apps and devices.

The goal of the research was not only to discover if brain expansion was possible but also to see what products are being promoted as a result of this discovery but also to see if these "brain expansion" products were safe to consumers as advertisers and manufacturers push these products to be nothing less than beneficial to its users and target market. The purpose of this research study comes from two completely different topics of research and fronts. This was done through extensive research both within the fields of neuroscience and marketing. Which when brought together not only shined a light on the true greatness of this research but also the possible terrors and health risks it poses to the public and consumers.

### **Conclusions**

Although due to limited resources, trial information, and time restrictions, many conclusions have and will come from this type of extensive two-segment research topic. To start

with the conclusions are based on the neuroscience and neurological part of the research. Brain expansion as a whole is possible, but not in the way most view it to be. There is no research proving one can enhance their brain to do things as such as feel each and every molecule, unlock memories from before being born, know every language, disappear into matter, and download knowledge very much like a computer. Things like that are what appear in Hollywood or television films. While, yes, they are promoting brain enhancement and unlocking it, they seem to leave out the most basic of brain enhancement effects such as sharper memory, the ability to focus longer and more in-depth, being able to function at a higher level than the average human, and even to hearing and vision focus. Now if someone were to ask if those are all possible, then the answer is yes. Within research done, it has been proven that numerous Nootropic drugs, such as nicotine, caffeine, L-Theanine, Bacopa Monnieri, Noopept, Modafinil (Provigil), and Methylphenidate (Ritalin), can all be seen in the right doses to improve cognitive function skills within children and adults. Increasing brain power in the forms of increased memory, focus, information interpretation, and overall alertness, are all things that can be classified as brain enhancers, as they said and marketed do just that. So, the theory of total brain enhancement can be proven to be achievable to a point, but at what point does it take too far?

On the other side of the spectrum of this research was the marketing side of things. Just how the effects and methods of advertising “brain expanding” products to the public with no proven trials or work, leads to health issues and false advertising. This has been an issue for decades ever since these types of unregulated products have hit the market and streets. Like any medication or supplement, there are always possible side effects. Research shows that with almost all nootropic or “smart drugs” numerous side effects such as brain fogginess, headaches, digestive discomfort, insomnia, mood imbalance, nausea, high blood pressure, circulation risks,

vision issues, and much more. The goal was to dive deep into this and see just how these products make it into the market so commonly while being non-FDA approved. While the FDA is supposed to regulate pretty much anything that can be served, taken, drank, and eaten. It has loopholes for new products such as nootropic or smart drugs. Under the FDA called “Preserving Patient Access to Medically Necessary Drugs” (FDA. 2021), allows drugs not fully approved to be sold as medically necessary drugs, which most of them are in their respective way, but when put all together may or may not be dangerous or beneficial.

Overall, a final conclusion has been made about nootropics and smart drug combinations being put together into a small pill bottle anyone can buy over the counter or online. These drugs are just too new to say yes or no to currently. Although these drugs have been around for decades or even centuries, the combined usage of these drugs, supplements, and devices has not yet been fully discovered. Only time will tell the true horrors these drugs may place on consumers. All were brought to light by marketers, advertisers, and manufacturers to raise sales and promote products while not knowing the dangers they may pose.

## **Limitations**

Researching comes with a cost. It can be as simple as black and white, or it can be extremely complex and detailed. Research requires many different sources, perspectives, and topics. With this, there can be many limitations involved. Limitations put restrictions on what can be achieved. Limitations test one’s inner self to push forward through problems and challenges and still succeed in the end. At the beginning of my research, I noticed there was not much work or research directly related to my thesis topic of Nootropics. The topic had to be explored in many different ways and forms. This resulted in piling together extensive research and data from numerous sources and studies and then finding the mutual connections between

them. This ultimately led to a lengthier and more in-depth research strategy than I originally planned. The other limitations I faced included problems such as classified documents and medical trials that were un-viewable. These would have been a tremendous help, but, unfortunately, I did not have basic access to them.

Similarly, to view specific readings, many websites and databases require a form of payment or a subscription. This brought up several problems for me, as I could not access many relevant articles and journals. Another limitation I faced was the time constraints. With my thesis being written in only a few months, there was not much room for trial and error. This meant that if I found specific findings that appeared to be helpful at the time and I chose to use them, but then they later proved to be useless, I could not turn back and start over. This led to rushed research, writing, and a lack of editing at times. Another problem I found was that if I wanted to include research trials and results from a longer study, I had to read through it carefully and include all of the correct information necessary in explaining my thesis. This led to rewriting their findings, which would have been too detailed to include inside my own research study.

Overall, with the amount of research put into this thesis, limitations played a major role in the formatting of the work itself. This was due to the limited number of resources available, websites that required subscriptions, time constraints, and extensive research studies. It is expected that limitations are prevalent in every thesis due to the research methods and knowledge on hand. With databases and libraries only holding so much information, I found that it was crucial to find up-to-date articles and work studies. This was one of the toughest issues to overcome, as Nootropics have not been a popular topic in the mainstream media, research studies, or even in Hollywood films. Although there was a trend in movies regarding brain expansion, they have now decreased and have not been released for nearly a decade. These

limitations may have halted my research at times, but as seen in my thesis, when one decides to use their brain to 100% of its capability, anything is possible.

### **Recommendations for Future Research**

When it comes to this type of research, it does not come easy. This topic of choice was very intriguing, but very difficult to put together as a whole research topic. With the limitations of limited direct articles, books, and other methods of research. It involved a deep dive into the basics of each article to tie articles from different sources and topics together. I am sure future research will be done on this topic. It could be in a year or even tomorrow. This topic has sparked a light for many scientists and researchers all around the globe for hundreds of years. When making recommendations for future research you must look at it from your own mistakes.

To start, greater prior knowledge must be known before jumping into this topic. As it involves looking at numerous medical charts, cases, and clinical trials. Recommending basic knowledge of the FDA and other drug administrations around the globe would also be a great help to one looking to dive in. Knowing the autonomy of the human brain is a must-have for future research as one must know and understand the different components responsible for basic cognitive function.

Another great recommendation for the future would be to dive into the marketing side of enhancement drugs and products. This has become a topic in which research and trials of different drugs and products on the market, have quickly been hidden or denied due to health or legal issues with the products. This brings up another great point. Time. Timing is everything when it comes to research. These products have come and gone over the years. With time showing only is it every so often new products within this research category come to the main surface level with tons of research and data available on them. It makes it very difficult to find

data useful with such new drugs or products on the market. Because even though they have been on the market for months or even years. Research regarding total health risks and side effects has not been published due to the lack of time researchers and scientists have had with these drugs or products in the market. Advice to counter this would be to drag the study out for months or even numerous years to fully reveal the true data coming from both a marketing side, as well as a health and scientific side.

If all that were to not be possible. I would suggest working closely with specialists within these two fields of research to combine the two sides. In light of creating a better and more closely related marketing and neurological perspective for yourself and your audience. Making sure one's time management, available resources, useful data, and marketing information is clear and easily accessible while researching this topic further is key to success. Along with proper knowledge and backgrounds within the two fields of study in this topic, which can be seen as neuroscience and marketing. Overall, the recommendations may seem very slim or basic but are and will always be the key to unlocking the mystery of enhancing and unlocking the brain and its full capacity.

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