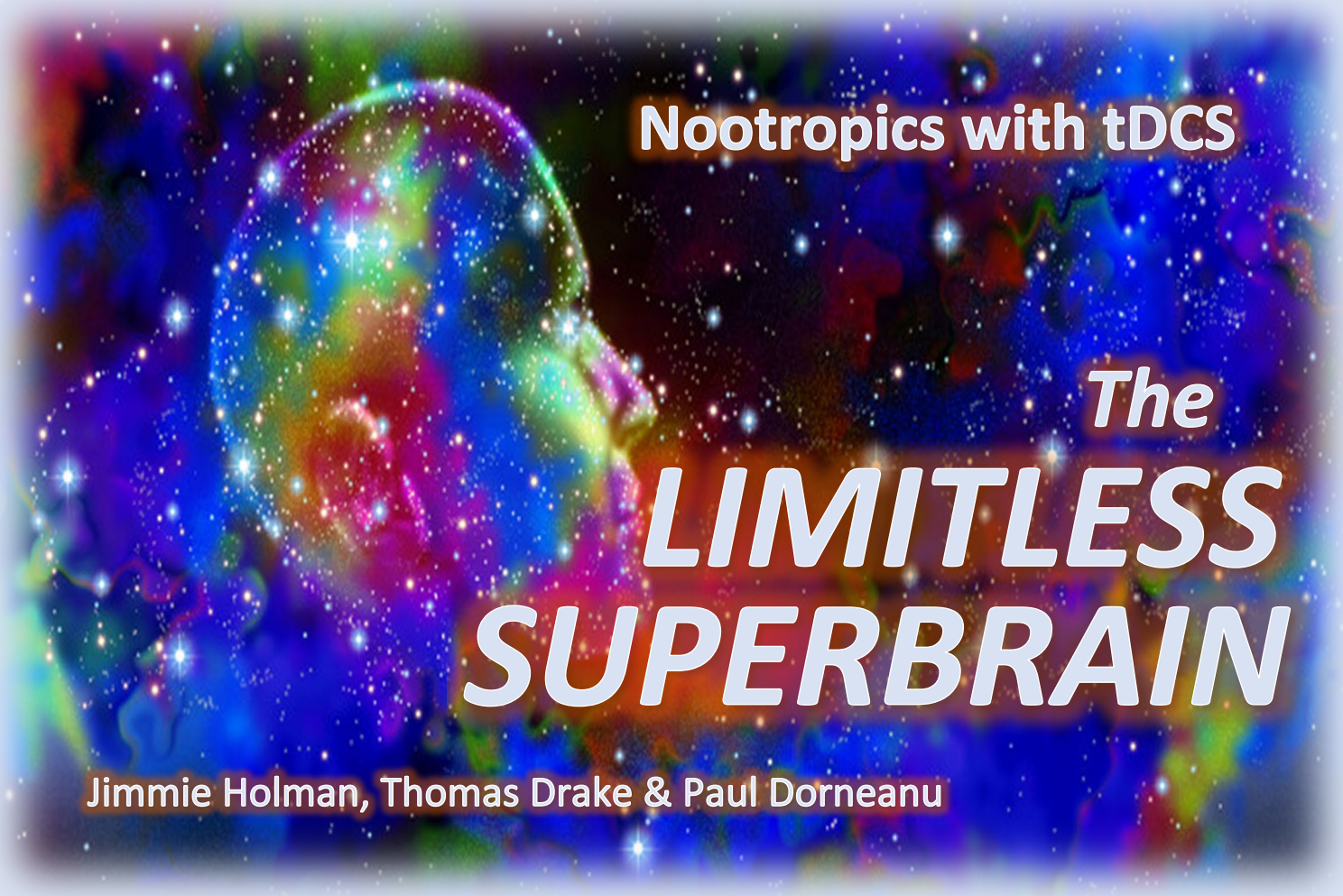


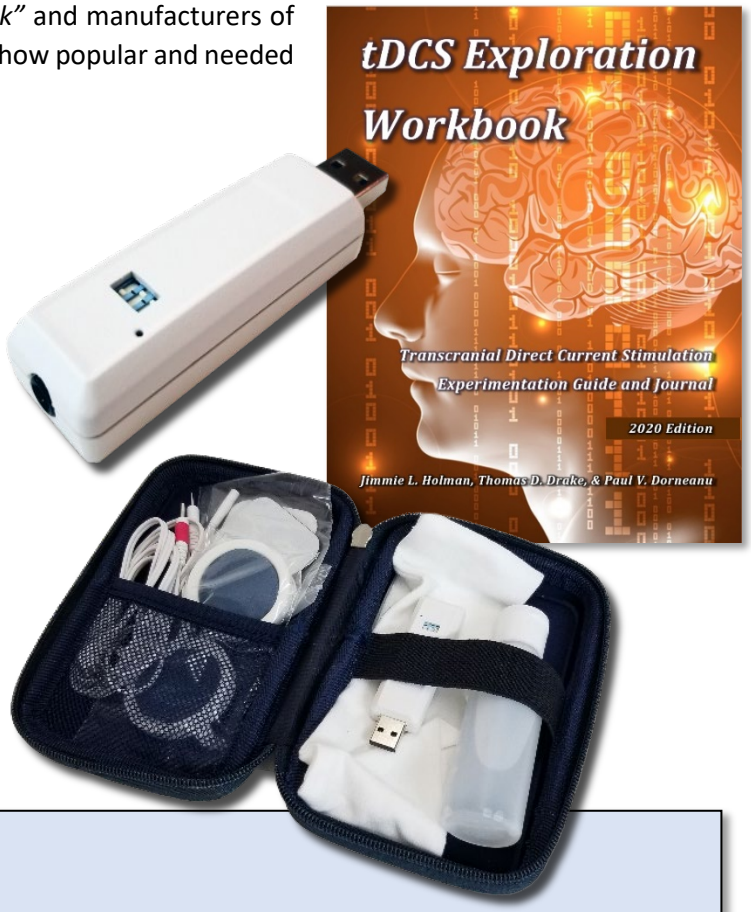
WHAT is a SuperBrain? WHY would someone want a SuperBrain?

HOW might one achieve a SuperBrain?

In today's competitive world, those who can think faster, longer, deeper; those who can process more information, recognize details, and make better decisions are the individuals who excel. The competitive athletes and gamers that can perform better, longer, faster, with the finer detailed physical controls, are the ones who win! Unfortunately, our modern world and technological society has provided us with so many distractions and environmental assaults that it is proving quite detrimental to many of our physiological processes, especially our mental faculties from motor control, clarity of thought, to eventually the breakdown or total disfunction of even the basic functions required for daily life. To accept these degradations as simply part of the aging process or as an unfortunate victim of our modern environment will doom any person to simply be part of the status quo.

While many people regularly focus on the physical health and exercise at the gym, others direct their attention to diet and nutrition. Ideally a person does both. However, few people fully realize it is possible to provide our brains the same focus and attention that we give to our body. The science and technology of electrical brain stimulation (Transcranial Direct Current Stimulation) in association with smart-drugs (nootropics), while previously confined to military and scientific laboratories, is now available to those who want to make themselves the very best that they can be!

When we, the authors of "*The tDCS Exploration Workbook*" and manufacturers of the tDCS Exploration Kit[1] released in 2018, we had no idea how popular and needed the system was to become. Although we had our own personal needs and expectations, we could not have imagined at the time how greatly the self-improvement trends of yesterday (within those "in-the-know" groups) would have evolved into the world of strategic and increasingly technical, personal "biohacking", and that this new world has exploded into something more desirable and achievable for almost anyone.



Transcranial Direct Current Stimulation (tDCS) is a complex sounding name for an amazingly simple but important application. In actual practice, tDCS is the simple strategic placement of electrodes with barely noticeable current on the head to activate, improve, retard, or reduce select brain functions.

tDCS – The "Technical" Explanation

The enhancement of human cognitive processes has long been a focus of scientific experimentation, and transcranial direct current stimulation (tDCS) has recently come to the forefront as a promising tool for modulating cognitive and motor skills. tDCS is a popular brain stimulation method that is used to modulate cortical excitability, producing faciliatory or inhibitory effects upon a variety of behaviors.

tDCS involves the emission of a weak electrical current, traditionally via the placement of two electrodes attached to the scalp of a participant. One electrode is known as the **target electrode**, the other the **reference electrode**. Some montages place the reference electrode extracephalically (outside the head) for example on the upper arm. On the other hand, electrodes may be placed "bihemispherically" (using both brain hemispheres), to emit dual stimulation to two parallel cortices. This refers to purposefully upregulating one region of the brain, while downregulating another.

During stimulation, current flows between the electrodes, passing through the brain to complete the circuit. It is generally assumed that a positive anodal current temporarily facilitates behaviors associated with the cortical region under the target electrode, whereas a negative cathodal current inhibits behaviors.

Direction of current flow differentiates anodal and cathodal stimulation by modulating the resting membrane potential of the neurons stimulated. Anodal stimulation depolarizes the neurons, increasing the probability of action potentials occurring, whereas cathodal stimulation hyperpolarizes neurons, thus decreasing the likelihood of action potentials occurring. These polarity-specific effects have been demonstrated in multiple paradigms both during (online) and post-stimulation (offline). This also refers to purposefully upregulating one region of the brain, while downregulating another.

[1] *https://www.pulsedtech.com/product/tdcs/*

tDCS - The "Super-Simplified" Explanation

While there still is not a complete single consensus of how the mechanisms of tDCS works, there is agreement of observation of the positive physical changes that occur as a result of stimulation. The explanations for the observed results often may have multiple descriptions from different perspectives. At this point in time, one explanation may seem better than the other, yet each may have the potential of being viable and correct. Time will tell which theories become the accepted standards.

If you read the previous page and came away total confused …don't worry …. The "easy" explanation:

- **We can safely enhance certain parts and activities of the brain by stimulating and increasing the electrical activity.**
- **We can tone down certain areas and activities of the brain, reducing electrical activity by controlling the direction of electrical flow.**
- **Regular use of tDCS has shown long term repair and improvement in the selected activities.**
- **This Workbook and Guide makes the tDCS procedure really safe and easy!**

The WHAT and WHY of a SuperBrain

Simplistically speaking, the SuperBrain is one which the user intentionally develops to excel in the areas of his interest of choice. For some that may equate to accelerated learning[2] in advanced technical fields, increased focus and attention, increase memory recall, enhance mathematic and numerical capabilities, or to improve dexterity and fine motor control including competitive athletics. Studies show any of these mentioned areas of interest or need, and many more, may be improved via simple but strategically targeted stimulation to give the user a competitive edge over fellow workers, competitors or even their own personal development. It was the Defense Advanced Research Projects Agency's (DARPA) military and intelligence agency studies related to accelerated learning, cognitive enhancement, and persistent situational awareness that specifically brought this technology to the public forefront and our attention.

What may be even more exciting for many is that many bio-physical deficiencies of the brain manifesting themselves as mild to serious conditions, can also be greatly helped or even corrected if given the opportunity of properly informed and strategic personal application. Many common issues, such as those related to motor control after a stroke or traumatic brain injury, can be minimalized. Likewise, issues with both Alzheimer's and Parkinson's disease may be strategically addressed and improved.

In fact, many of the issues and degradations we typically associate and normally accept as part of the aging process need not necessarily occur. Like an athlete who exercises their whole life to maintain his physical best, the brain can also be exercised and stimulated to maintain its physical and chemical best as well.

The HOW of Building a SuperBrain

While there have now been literally decades of study on the subject of electrical brain stimulation, the technical and specific jargon within the clinical laboratories have largely isolated the general public from what should be an incredibly inexpensive solution to many common and almost universal issues. Many hundreds of technical studies on the subject

[2] Kruse, Dr. Amy – DARPA Operational Defense Advanced Research Projects Agency - Defense Sciences Office, Dr. Amy Kruse presented "Operational Neuroscience" for an Intelligence Community Forum.

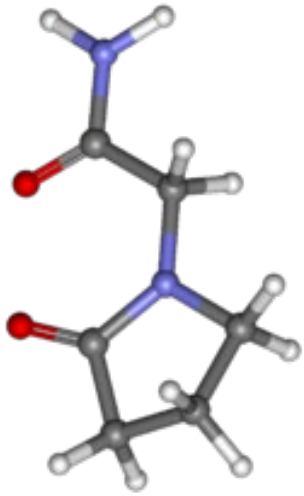
have been published but remain relatively meaningless to the general public because the language has rarely been translated into non-technical, understandable and pertinent terms for casual usability. The original *tDCS Exploration Workbook & Kit* provided the average person the tools to easily investigate and understand the possibilities of this amazing technology. This seemingly encrypted terminology and description have been "translated" into both simple language and pictorial form, so that the user could now personally experience and successfully improve issues of their personal choice. Of course, the many published abstracts were also included as well as links (in most cases) to the full detailed technical papers so that the reader could easily "go as far down the rabbit hole" as they desire in their private quests.

Seemingly encrypted terminology has been translated into simple language and pictorial info so that almost anyone can now experience this useful technology

The article, "*Building Your SuperBrain: Using tDCS to be Our Very Best*"[3], was first released in association with the release of Pulsed Technologies' "*tDCS Exploration Workbook"* and Experimenter Kit and offered many a first glimpse as to what might be possible for themselves. The incredible feedback and special requests from the many hundreds of users revealed where your interests and personal needs lie. While the e-book and kit were originally intended for largely educational and self-improvement purposes, the many messages and kind letters often revealed where users had successfully found relief and recovery from clinical issues, often even after decades of ineffective or failed medical treatments.

Among the foremost of all self-development/self-improvement groups with which we are currently involved, are the Arabic Summit groups associated with Dr. Salah Al-Rashed. In one of the private discussion groups it was posed by one of the members who simply asked the question "Can nootropics be used with tDCS?". Like a flash of lightening, the inspiration for a new version for the book began. **This** was a "marriage of technologies made in heaven"!

Nootropics = Smart Drugs



The term "nootropic" in the more common vernacular is often referred to as simply "Smart Drug". Piracetam, the original synthetic nootropic, was developed by Romanian psychologist and chemist Corneliu E. Giurgea in 1964. Also coining the word "nootropic," he identified the characteristics each substance should possess:[4]

- They should enhance learning and memory.
- They should enhance the resistance of learned behaviors/memories to conditions which tend to disrupt them.
- They should protect the brain against various physical or chemical injuries.
- They should increase the efficacy of the tonic cortical/subcortical control mechanisms.
- They should lack the usual pharmacology of other psychotropic drugs (e.g. sedation, motor stimulation) and possess very few side effects and extremely low toxicity.

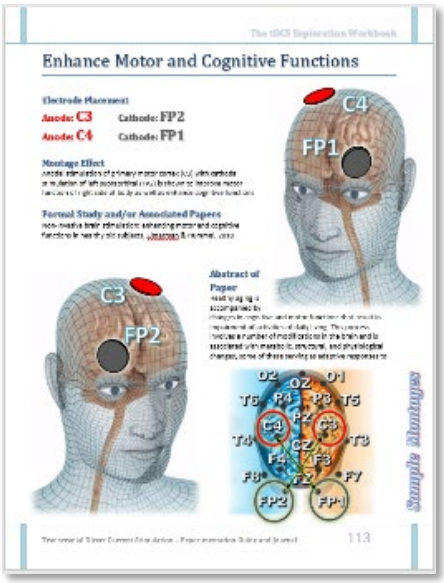
[3] *http://www.pulsedtechresearch.com/wp-content/uploads/2018/11/Building-YOUR-SuperBrain-Holman-Drake-Dorneanu.pdf*
[4] *https://en.wikipedia.org/wiki/Corneliu_E._Giurgea*

When one considers that most substances considered “Smart Drugs” are much more inexpensive natural nutritional supplements and natural molecules, rather than expensive patented and heavily promoted pharmaceutical compounds, one begins to better understand why this information is not as readily available.

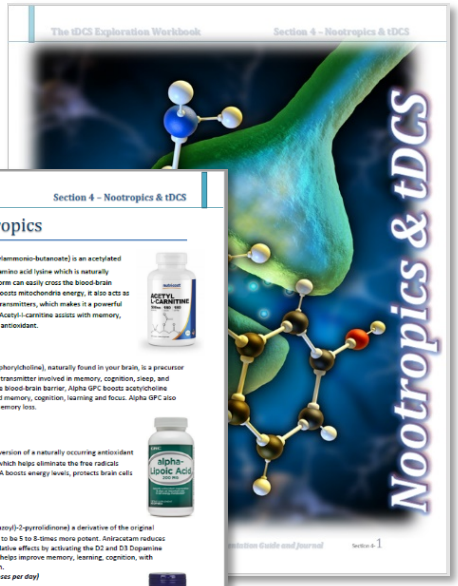
The whole point of tDCS is to “amp up” or “tone down” selected signaling to improve targeted brain functions. While tDCS is helps modify the select brain areas to be more electrically responsive, nootropics are essentially providing the chemistry to help specific neurons fire better and more efficiently.

This technically symbiotic relationship of two different technologies combine to provide a far better and more permanent result than either technology alone.

Thanks to the suggestions, requests, and encouragement from the many like-minded users, researchers and experimenters, the original edition’s 360 pages have been expanded to well over 500, but it remains even more organized with easily reference-able and sectioned pages including an entirely new chapter on approximately 85 of the most used and available cognitive brain enhancers or Nootropics. The number of available samples tDCS montages has also more than doubled.



The first edition of “*The tDCS Exploration Workbook”* made possible easy location of the minimal amount of information (the What, Where, When, Why, and How”) to accomplish the user’s personally selected goals. The second edition has greatly expanded but has kept the same concept of use to allow the user to select from the very best nootropics to supplement and accomplish their personal goals in a similar manner. Common dosage for typical nootropic use, as well as contraindications where known, is also included.



Together, these two separate technologies, merge to form that ideal “marriage” referenced previously, providing the dedicated user an experience far more than what each alone could individually provide.

Achieving Your SuperBrain

The latest edition of *"The tDCS Exploration Workbook"* and included Experimenter Kit provide ANY user the resources needed to identify needs, solutions and easily locate the pertinent information to accomplish their personal goals. While the procedures and materials are simple to understand, acquire and use, it is not necessary that the user have an in-depth clinical understanding to accomplish their selected choices.

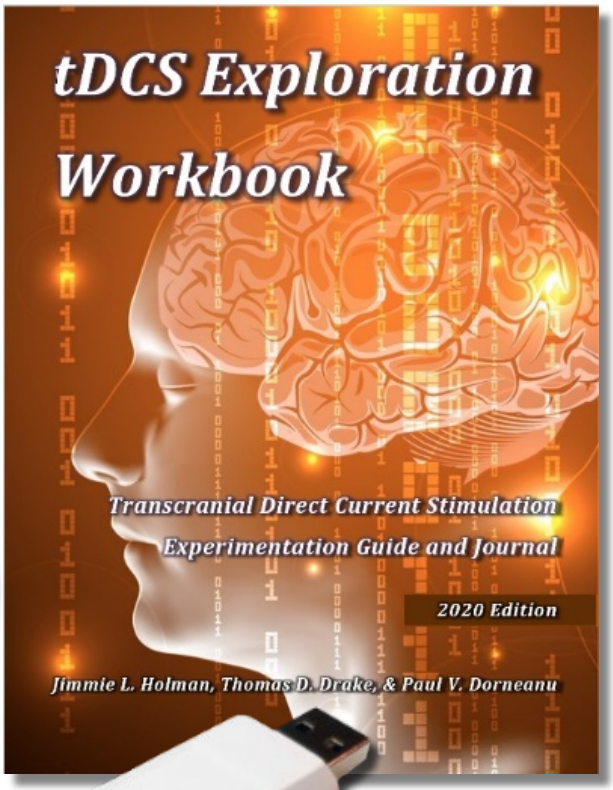
Learning, Attention, Cognition, Anxiety, Stress, Depression, Mood, Motor Control, Performance, Endurance and many other areas of enhancement, correction or repair may be effectively addressed with regular tDCS use.

Transcranial Direct Current Stimulation (tDCS) and nootropic technologies are NOT simply something "of the future". They are among the very best technology has to offer…

TODAY!

Be it the competitive athlete, the competitive student, the employee striving to get ahead, or a person suffering from or recovering from a plethora of afflictions, or the aging person simply wanting to slow down the hands of time, most all of us want to be the very best we CAN be!

The "tDCS Exploration Workbook" and tDCS Exploration Kit are sold as a package by Pulsed Technologies (PulsedTech.com) and many associate practitioners. The 500+ page, extensively illustrated reference, user journal, nootropic and quick guides are provided in electronic, but user printable format embedded within the USB instrument suitable for viewing on PC, Mac, Android, iOS, Linux and most other environments. Registered users may download electronic updates when available.



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www.PulsedTechResearch.com

www.PulsedTech.com

Sample Montages

Improved Decision Making

Enhance Planning Ability

Treat Stroke Patient with Aphasia

Improve Visual Memory in Alzheimer's Patients

Improved Working /Memory in Parkinson's Disease

Increased Motivation / Reduced Depression

Stimulation of Midbrain for Reward/Motivation

Improve Attention & Learning

Enhance Attention & Vigilance (DARPA)

Enhance Creativity

Improve Social Interactions

ADHD & Impulse Control

Reduce Risk-Taking Behavior

Reduce Major Depression

Reduce Depression & Anxiety

Reduce Pain, Depression

Reduce Pain in Fibromyalgia

Improve Audio Processing

Improve Pitch Memory

Increase Motor Ability in Stroke Patients

Enhance Motor Skill Acquisition

Enhance Motor & Cognitive Functions

Improve Insightfulness / "Savant Learning"

Improve Mathematic Ability

Enhance Verbal Creativity

Enhance Language Performance/Processing

Improve Speech Production

Improve Attention

Improve Vision & Motor Reaction Time

Enhance Meditation

Reduce Cravings

Reduce Migraine Pain

Improve Sleep

----------NEW for 2020----------

Diminish Impulsive Behavior

Stimulation of Lower Limb Motor Cortex

Increase Aggression from Anger

Reduce Food Craving

Reduce Major Depressive and Bipolar Depressive Disorder

Reduce Depression Following Stroke (PSD)

Reduce Seizure Frequency

Stimulate Motor Recovery in Stroke Patients

Improve Control of Non-dominant Hand

Increase Thermal and Mechanical Sensitivity

Reduce Cravings (Marijuana)

Improve Numerical Competency

Accelerate Visual Learning Ability

Improve Action Selection of Motor Movement

Improve Pitch Discrimination

Improve Visual Memory

Reduce Neuropathic Pain

Complimentary Treatment for Anorexia

Reduce Pain in Multiple Sclerosis

Reduce Chronic Pain

Improve Visual Memory & Naming Facilitation

Improve Mood

Improve Attention in Patients with TBI

Improve Attention & Increase Memory

Improve Naming Reaction Time

Improve Hand Dexterity and Attention

Increase Recall Memory

Increase Word Retrieval Ability

Enhance Associative Verbal Learning

Improve Behavior & Function in ASD

Improve Syntax Acquisition

Decrease Autism Severity & Related Problems

Reduce Catatonic Symptoms

Improve Visual Attention & Inhibitory Control

Improve Working Memory Performance in ADHA

Improve Reading Ability

Improve Signs of Consciousness in TBI

Enhance Multitasking Capability

Recommended Nootropics

Acetyl L-Carnitine

Alpha GPC

Alpha-Lipoic Acid

Aniracetam

Ashwagandha

Artichoke Extract (Luteolin)

Bacopa Monnieri

Berberine

Cacao

Caffeine

Cat's Claw

Cannabidiol (CBD)

Choline

Choline Citrate

CDP-Choline / Citicoline

Centrophenoxine

Coconut & MCT Oil

Coluracetam

Coenzyme

Creatine

DHA (Omega 3)

DHEA (Dehydrogepiandrosterone)

DMAE (Dimethylaminoethanol)

5-HTP (5-Hydroxytryptophan)

Forskolin (Coleus Root)

GABA (gamma aminobutyric acid)

Ginkgo Biloba

Ginsing

Gotu Kola (contella asiatica)

Holy Basil (Tulsi)

Huperzine-A

Iodine

Kava Kava (piper methysticum)

Kratom (Mitragyna speciose)

Lion's Mayne Mushroom

L-Carnosine

L-Dopa (Mucuna Pruriens)

Lemon Balm (Melissa officinalis)

Lithium Orotate

L-Theanine

Maca

Magnesium

Methylene Blue

Melatonin

N-Acetyl L-Cystine (NAC)

N-Acetyl L-Throsine (NALT)

NADH (Nicotinamide Adenine Dinucleotide + Hydrogen

Nefiracetam

Nicotine

Noopept

Oat Straw (avena sativa)

Oxiracetam

Phenibut

Phenylpiracetam (Carphedon)

Picamilon (nicotinyl-y-aminobutyric acid)

Pine Bark Extract (Pycnogenol)

Piperine

Piracetam

Rhodiola Rosea / AMPK

Phenylalanine

Phenylethylamine (PEA)

Phosphatidylcholine (PC)

Phosphatidylserine (PS)

PQQ (pyrroloquinoline quinone)

Pramiracetam

Pterostilbene

Resveratrol

Saffron

SAM-e (S-Adenosyl Methionine)

St. John's Wort (hypericum perforatum)

Sulbutiamine (isobutyryl thiamine disulfide)

Taurine

Tryptophan

Tumeric (Curcuma longa)

Tyrosine

Uridine Monophosphate (5'-uridylic acid)

Valerian (Valeriana officinalis)

Vinpocetine

Vitamin B1 (Thiamine)

Vitamin B3 (Niacin or nicotinic acid)

Vitamin B5 (Pantothenic Acid)

Vitamin B6 (Pyridoxine)

Vitamin B8 (Inositol)

Vitamin B9 (Folate)

Vitamin B12 (Cobalamin)

Vitamin D

Zinc