

Review Article

A Review on Natural Nootropic Medicines and Their Potential Human Health Benefits



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Abstract:

Nootropics, often known as smart agents or supplements that improve cognitive ability. They operate by improving cognitive abilities such as memory, creativity, motivation, and concentration. Recent studies have focused on a natural nootropics. The effects of nootropics on the brain have been extensively researched. These influences brain functioning via a variety of methods or routes, such as the dopaminergic system. Previous studies have found that nootropics can help treat memory illnesses like Alzheimer's, Parkinson's, and Huntington's. These illnesses have been shown to disrupt the same nootropic pathways. Natural nootropics have been extensively researched to support their therapeutic effects. The current study found that rising interest in brain health and productivity has resulted in the development of a various types of synthetic supplements, but not all of these chemicals are without risk. Natural nootropics are a far healthier and safer option to many synthetic nootropics, which may have adverse effects. These types of substances have a wide range of benefits and cognitive fitness, whether it's improving mental performance, lowering the risk of disease, or increasing resilience to stress. Understanding how to include these types of supplements into daily life and can help us have a better understanding of our fitness.

Keywords: L-theanine (L-THE), attention deficit-hyperactivity disorder (ADHD).

Introduction:

Natural Nootropics as Supplements

Supplements have numerous helpful for mind fitness, Supplements should not be utilised in place of healthy practises. Getting sufficient sleep, eating a balanced food, and managing anxiety are

critical for achieving peak cognitive performance. Once these adjustments are implemented, these supplements can supply as an added benefit for boosting psychological roughness, dropping mental weariness, and lowering the odds of age-related cognitive decline. There are numerous mind boosters obtainable, however some have safety risks and adverse effects.

Plant derived nootropics are much safer than artificial ones because they do not induce adverse things alike to other nootropic medicines in their purest form. Look for standardised nootropic herbs or those with certain trademarks or labelling which stands for good manufacturing processes. Look for Nootropics that do not contain any artificial components or common allergies. The presence of components and allergens like as gluten, soy, and dairy, best natural supplements and how they can help your mind and body.

Nootropics, often known as smart medications, have been in development for more than three decades and are the most commonly utilised approach for treating cognitive deficiencies. In general, it refers to any chemical that has a good effect on cognitive performance. These types of nootropic is a substance that improves mental functions like as concentration, motivation, and memory concentration. Synthetic types of nootropics, such as Piracetam, and herbal nootropics, are the two types of nootropics (American Ginseng). Nootropics can be synthetic

and manufactured in a laboratory. They most likely function by changing the quantities of neurotransmitters, hormones, and enzymes accessible to the brain, either by increasing brain oxygen supply or stimulating neuron development. However, the full description of their efficacy appears to be lacking at the moment. This is due to the lack of a scale for quantifying intellect and intelligence. Memory boost the levels of neurotransmitters like acetylcholine and increase blood flow to the brain. They also work as vasodilators against the brain's tiny arteries and veins.

They are said to increase the release of numerous neurotransmitters such as dopamine as well as choline absorption, as well as cholinergic transmission, phosphatidylinositol turnover, the function of the α -amino-3-hydroxy-5-methyl-4-isoxazole propionate receptor, and the activity of phosphatase A2. Some of them favorably regulate the activation and expression of cholinergic or glutamate receptors. These specific properties of natural nootropics result in long-term potential and increased synaptic transmission due to increased neurotransmitter levels and activity.

Certain additional possible nootropics can also be used to treat a variety of neurodegenerative or neuropsychiatric illnesses. Cognitive dysfunctions caused by ageing are also included in these disorders. These are FDA-approved acetylcholinesterase inhibitors, such as donepezil. These medications are more precise in altering

neurotransmitter targets such as histamine, serotonin, glucocorticoids, neuropeptide receptors, and epigenetic pathways.

Some Examples of Natural Nootropics

1. Green Tea

Green tea contains L-theanine, a popular and effective nootropic. L-theanine has been demonstrated in numerous studies to improve attention performance, sleep quality, promote relaxation and reaction time. This may also be beneficial for those suffering from severe anxiety. These advantages are linked to L-neuroprotective theanine's properties, which means it can developed nerve cells in a variety of ways.

L-theanine (L-THE), an amino acid found in green tea, has been linked to a variety of health advantages, including improved mood, cognition, and a reduction in stress and anxiety-like symptoms. In human randomized controlled trials, this systematic review looked at the effect of pure L-THE consumption in the form of orally delivered dietary supplements on stress reactivity and anxiety levels. Supplementing with L-THE may help reduce stress and anxiety in those who are exposed to stressful situations. Regardless of this conclusion, longer-term and bigger cohort clinical trials, particularly those in which L-THE is frequently introduced into the diet, are required to clinically support the use of L-THE as a therapeutic agent to reduce stress and anxiety in

patients exposed to stressful settings.

Supplements: 200-400 mg/day



Fig.1 Leaves of Green Tea

2. Brahmi

Brahmi is also known as Indian pennywort in Ayurvedic medicine. Plant derived nootropic agents support mind performance whereas dropping stress and having anti-inflammatory properties. It reduces oxidative stress which are linked to many modern lifestyle diseases, including heart disease, diabetes, and cancer. Bacopa can be increase certain brain chemicals which are coming under in thinking, learning, and memory of the body. It also protect brain cells which are from chemicals involved in Alzheimer disease. However no good scientific evidence supports any of these uses. Contrast Bacopa with gotu kola. Both plants are sometimes referred to as Brahmi. This contains bacosides, which are active molecules that protect your brain and improve signalling in your hippocampus, which is a part of your brain where memories are processed.

Supplements: Doses of 300–600 mg should be taken for several months for maximum benefit.



Fig 2. Bacopa Monnieri

3. Panax Ginseng

Ginseng is widely used medicine and a long root which is light brown in colour with green leaves and a bitter taste flavour that comes from traditional Chinese medicine. The two most common types are American and Asian both of which have immune-boosting properties.

Ginseng can aid with menopause, cancer, high blood pressure, and heart disease by supporting normal blood sugar levels. Because ginseng is a strong herb, it has the potential to react with other pharmaceuticals therefore occasional doses may help enhance mental performance, but long-term effectiveness requires more investigation. Panax ginseng root is an old medicinal plant that has been used to improve brain function. A single dose has been demonstrated to considerably increase performance on demanding activities such as mental math problems and minimize brain fatigue.

However, it is unknown how it improves brain function. It could be because of its potent anti-inflammatory properties. Longer-term research has discovered that your body may adapt to ginseng, making it less beneficial after several months of use. As a result, more research on its long-term nootropic benefits is required. Supplements: Doses taking a single dose of 200–400 mg



Fig3. Panax Ginseng

4. Rhodiola Rosea

Rhodiola rosea, also known as rosenroot which is a herb of mountain with the aim of thrives in freezing climes. It has over 140 active components and is used to cure nervousness. It has antidepressive and anti-fatigue properties. Antidepressant medicine Zoloft, the active constituent of which is sertraline, to test its antidepressant effects. While the chemical medicine had a stronger effect which are reducing all the symptoms of depression types of diseases, the herb was simpler to manage because it had no adverse effects.

Rosenroot is a Ayurvedic medicine that may help to reduce high stress and lessen associated mind weariness. This natural herb help the body in dealing with stress more successfully. Several studies have demonstrated that supplements can boost mood and reduce feelings of suffer exhaustion in those who are nervous or extremely stressed. This medicine has been found to alleviate mental tiredness and boost feelings of well-being in persons during stressful periods of exams when taken in tiny daily doses. More research is required to discover appropriate dose and to better understand how the herb produces these benefits.



Fig.5.Lion's Mane Mushroom

6. Maidenhair tree (Ginkgo Biloba)

This plant has a great effect on brain functions, nervousness and pressure management. So many studies have revealed the use of the herb to decrease symptoms of mild Alzheimer's disease and cognitive impairment.

Blood flow may be improved with the help of Ginkgo Biloba, which can benefit artery health and lessen the risk of stroke. Other studies show that Ginkgo has a good impact on eye health. According to some research, may improve memory and intellectual processing and may be useful in stressful conditions. However, more research is required.

Extracts from the tree's leaves may also be beneficial to your brain. When taken regularly for six weeks, this pharmacological supplement has been demonstrated to improve reminiscence and mental performance in healthy elder adults. It's



Fig4. Rhodiola Rosea

5. Lion's Mane Mushroom

Lion's mane mushroom as a tea to boost brain function. While there is no conclusive evidence relating lion's mane which is Alzheimer's disease prevention purposes, and have a neuro-protective effect in treating or preventing neurodegenerative illnesses, cell death, persistent inflammation and brain damage as a result of this.

hypothesized that some of these benefits may be due to increased blood flow to the brain after supplementing with *this drug*. While these findings are encouraging, not all studies have found favorable impacts. More research is required to fully comprehend the potential effects of Ginkgo Biloba on the brain.



Fig.6.Ginkgo Biloba

7. Choline

The human body cannot make or a very small amount of choline in the liver; though, it cannot enough to meet the needs of humans. So, we have to get it from our balanced diet or from a choline supplement. Because of its importance in controlling liver function, metabolism, brain development, and muscular action, choline is frequently combined with B vitamins. While choline deficiency is uncommon, certain categories of humans may be more vulnerable. Like people include athletes, postmenopausal women, pregnant women, and heavy drinkers.



Fig.7.Choline

8. Caffeine

Caffeine directly boosts alertness, improves attention, and shortens reaction times. Caffeine is the world's most widely ingested psychoactive drug. It can be found naturally in coffee, energy drinks, kola nuts, chocolate, and tea, as well as in pharmaceuticals. It can also be used as a supplement in combination with other ingredients. Caffeine reduces tiredness by inhibiting adenosine receptors in the brain. The caffeine intake of 40-300 mg improves alertness and attentiveness while shortening reaction time



Fig. 8 Caffeine

9. Amidinosarcosine

Amidinosarcosine is also known as Creatine phosphate which is an amino acid that has been shown to increase short-term memory and thinking abilities. It is especially helpful in vegetarians and stressed persons. Long-term safety has been demonstrated with doses of 5 grammes per day. This bodybuilding supplement boosts muscular growth and also has mind benefits. Creatine joins with phosphate to form a molecule that the brain uses to quickly power its neurons.

This enhanced energy available for mind cells has been related to improved short-term recall and interpretation skills, particularly in vegetarians and highly stressed individuals. According to research, taking 5 grams of Creatine every day is completely safe.



Fig.9. Creatine

10. Nicotine

Nicotine is a plant derived substance that improves alertness, focus, and motor performance. Nonetheless, large amounts are addictive and dangerous. Nicotine is a naturally occurring substance that can be found in several medicinal plants, including tobacco. It's one of the ingredients in cigarettes that makes them so addictive. It can also be ingested as nicotine gum or absorbed via the skin as a nicotine patch. According to research, nicotine can have nootropic benefits such as increased alertness and focus, especially in persons who have inherently short attention spans. It has also been shown to enhance motor function. Furthermore, chewing nicotine gum has been associated to improved handwriting. However, this chemical can be addictive and fatal in high quantities, so use with caution.



Fig.10. Nicotine

Potential human health benefits of natural nootropic agents

1. Green tea contains L-theanine, a popular and effective nootropic. L-theanine has been demonstrated in numerous studies to good attention performance, sleeping quality, reaction time at presence, and relaxation.

2. Brahmi can be used to increase in learning, thinking, and memory. It also protect brain cells which are from chemicals involved in Alzheimer disease anxiety, and attention deficit-hyperactivity disorder (ADHD).

3. Panax ginseng root is an old medicinal plant that has been used to improve brain function. A single dose has been demonstrated to considerably increase performance on demanding activities such as mental math problems and minimize brain fatigue.4.rhodiola has antidepressive and anti-fatigue properties. Antidepressant medicine Zoloft, the active constituent of which is sertraline, to test its antidepressant effects.

5. Lion's Mane Mushroom have a neuro-protective effect in treating the neurodegenerative disease.

6. Ginkgo may help to increase blood flow that can benefit health of artery and lessen the risk of stroke.

7. Choline has importance in regulating such types of functions like liver function, brain development, metabolism, and muscular action.

8. Caffeine is a plant derived stimulant that boosts alertness, improves attention, and shortens reaction times. Caffeine is the world's most widely ingested psychoactive drug.

9. Creatine directly increases memory of brain and abilities of thinking.

10. Nicotine is a plant derived substance that improves alertness, focus, and motor performance.

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