MEMOPROTECT

FORMULA
for Healthy
Cognitive Function

Dietary Supplement

30 tablets

Our brain is composed of at least **100 billion nerve cells or neurons** with links which join more than over **100 trillion points**. It is a "forest" of neurons. Signals travel through this vast "forest" to form the basis of memories, thoughts and feelings.

As we grow older and develop, these neurons interconnect with each other and we can communicate with millions of links. Through these neurons and these links we have the ability to recall and monitor our movements. Memory is our ability to store and recall things that we have learned or experienced. **There are two types of memory: short-term and long-term**. Every memory we have, even that which is "lost" harvests physical changes in the brain. Memories are formed and stored in many areas of the brain, but the most active and vital area is the hippocampus - a region deep in the center of the brain which resembles a small sea horse.

The memory in the **hippocampus** area allows us to recognize and distinguish among old friends and new acquaintances or to find a way around an area. It even helps us to comprehend and try out new experiences based on old ones.

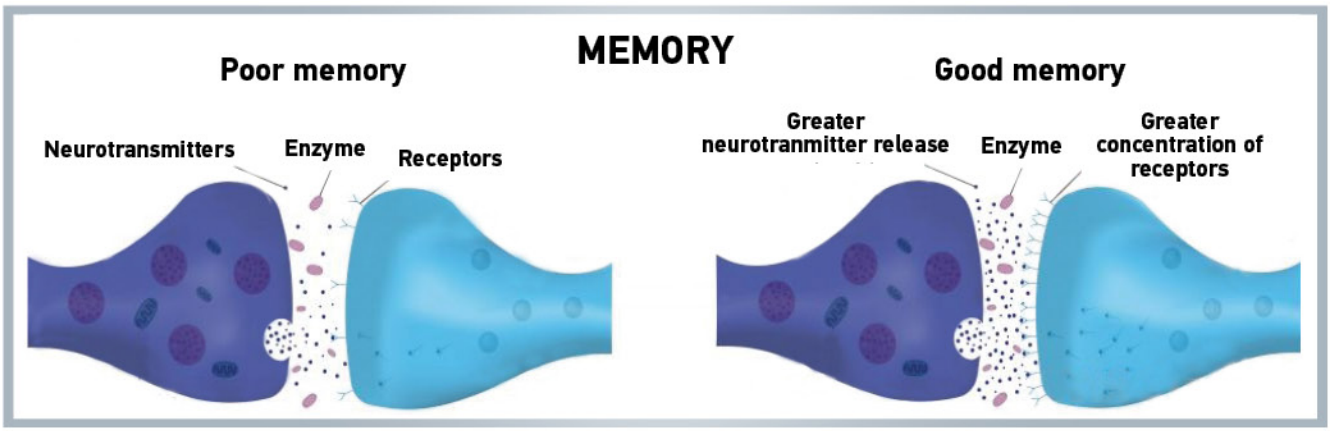
The **hippocampus** is the key organ to the brains' ability to digest new information and to integrate it into what is already known. As we experience and learn new things, the cells in the centers affiliated with memory tighten and strengthen the neuron connections known as synapses. The ability of brain cells to quickly form new synapses while at the same time push away the old is referred to as 'neuroplasticity.'Large number of synapses and a very dense special structureof synapses known as synaptic knobs favor rapid development and processing of information that is stored by the connected cells.

In essence the neuroplasticity is the natural equivalent of the learning process while the synaptic density is roughly the equivalent of memory.

Juvenile brains exhibit high levels of **neuroplasticity** resulting in large numbers of interconnected synapses. This is the reasoning behind why young people are fast learners and have sturdy memories. As we age the number of synapses and the ability to quickly form new ones decreases steadily. This of courseis the result of the normal aging process. People with **Alzheimer** or its predecessor, mild mental impairment, experience a faster loss both of neuroplasticity and in the number of synapses occurring. This is what takes place when memories start to fade or worse when they are completely lost.

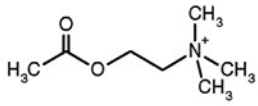
How are memories preserved?

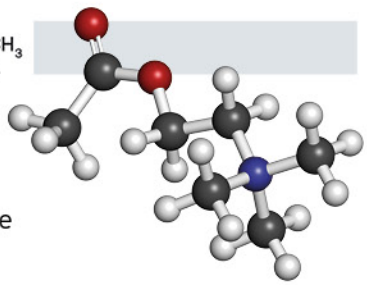
Although the initial signs of memory loss seem to appear after the age of 40 memory loss may also occurat an earlier age. It is at this age though that most people start exhibiting some signs of memory loss– of things, of persons, or situations. This is not a sign of aging but an early sign of cognitive decline. Aging affects the anatomy and the physiology of the brain. After forty the grey matter of the brain shrinks while with the turn of every decade the brain steadily loses brain cells knownas neurons and some of the surrounding cerebrospinal fluid. Neurons begin to lose some of their firepower andthe neuronal connections begin to short-circuit due to plaque deposition, breaking up the insulating layer that lines them as well as due to the aforementioned loss of cerebrospinal fluid.



It is important to note that memories remain stored even when the ability to have access to these lapses. Memory function starts with the initial reception of a piece of information where an independent neuron cell "transfers" the signals like a tiny electrical charge. Neuron cells are connected together with synapsis. When an electric charge approaches a synapsis, tiny microscopic explosions initiate therelease of chemical substances called neurotransmitters. These neurotransmitters travel alongside these synapsis, transporting signals to other cells. Despite the existence of dozens of neurotransmitters there are basically **three** types that can be classified according to their chemical composition or the molecular structure: the **amino acids**, **monoamines** and **neuropeptides**.

ACETYLCHOLINE

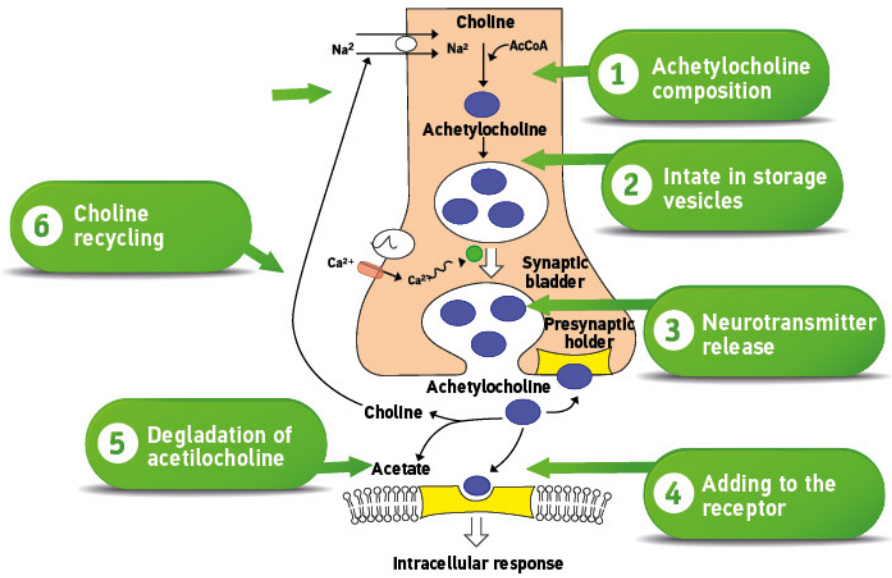




Acetylcholine was the first neurotransmitter to be discovered. A German biologist named Otto Loewi managed to isolate it in 1921 later to win the Nobel Prize for his work. **Acetylcholine** has many functions – it is responsible for the majority of the stimulation of the muscles, including the muscles of the gastrointestinal system.

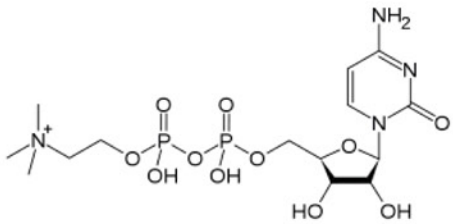
Acetylcholine's role in the CNS seems to be associated with the learning and memory process. During the learning process acetylcholine is released into the brain and is critical for the formation of new memories. Its role is to facilitate the activity of NMDA receptors which are proteins that control the strength of connections between nerve cells in the brain. The routes of **acetylcholine** in the brain represent areas with high concentrations of neurotransmitters including the cholinergic nerves that intervene for thetransmittal of signals. The routesthat are involved usually terminate or pass through the cortex and hippocampus, areas of the brain pertaining to attention, learning and the memory process.

Acetylcholine is synthesized in nerve cells that form the cholinergic pathway and especially in those located in the basal forebrain.

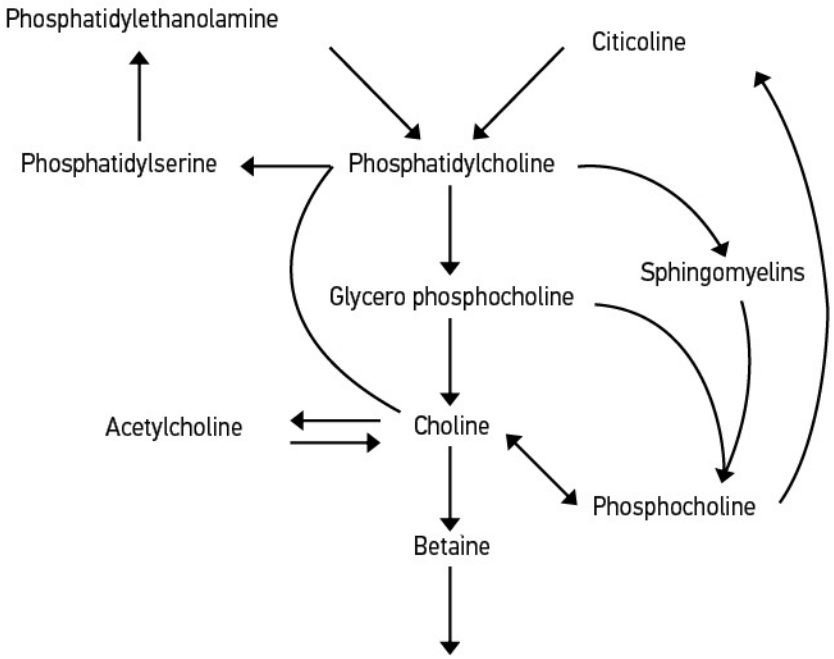


Some neurodegenerative diseases, including Alzheimer's disease, cause damage to the cells that produce acetylcholine in the basal forebrain. **Acetylcholine** is vital for thinking, memory and sleep, and is also involved in the control of movements. Not surprisingly, the production of acetylcholine decreases with age, resulting in poor memory, diminished learning ability and a general cognitive impairment. **Neurotransmitters** is composed of **choline** and **acetyl CoA** in a reaction catalyzed by the enzyme choline acetyltransferase,.

CITICOLINE



Citicoline is a bioavailable form of choline that is absorbed in the intestine and breaks down quickly in cytidine and free choline. Both ingredients pass through blood brain barrier in the brain. The brain has an insatiable appetite for choline and there are two main reasons for the brains huge need for this nutrient: choline is required for the synthesis of the neurotransmitter acetylcholine but is also required for the construction and the maintenance of the biological membranes in the brain. Choline is also important for the building of healthy biological membranes. Similar to phosphatidylcholine, it constitutes one third of the phospholipids of the biological membranes.



PANTOTHENIC ACID

For the production of acetylcholine an important cofactor, vitamin B5, is required. Pantothenic acid is converted in the body toPantethine, which in turn serves as a substrate for the synthesis of the coenzyme a (CoA).

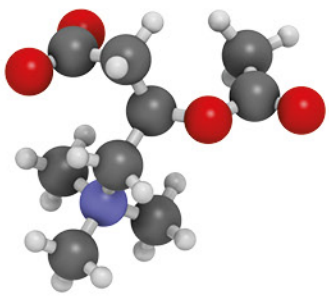
Pantothenic acid ..... Vitamin B5

↓

Pantothenic acid (Pan K) Pantothenic kinase

↓

Coenzyme CoA

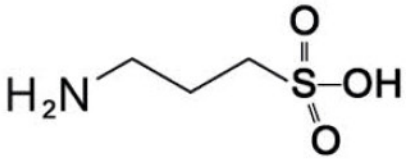


CoA enhances brain function by promoting the synthesis of acetylcholine. Memory loss happens due to the degeneration of the hippocampus - a region that is important for the production of acetylcholine. It has also been shown that Acetyl-L- increasesthe bond of glucocorticoid and nerve growth factors in the hippocampus.

HOMOTAURINE

In addition, Homotaurine seems to have a neuroprotective effect on the structure of the hippocampus and in mild cognitive impairment.
Its relative neuroprotective effect is due to its anti-amyloid special action and its close relation to the type gamma-amino butyric acid (A) receptor.

Its effects depend on the changes of the cortical GABA transmission underliningits role in improving cholinergic diffusion by regulating the inhibitory activity of the cortex.



MEMOPROTECT, thanks to its special formula, supports healthy cognitive function.

COMPOSITION IN ACTIVE INGREDIENTS	Per daily dose (1-2 tabs)	% RDA
Citicoline	250 - 250 mg	
Acetyl L carnitine	200 - 200 mg	
Homotaurin	25 - 50 mg	
Vitamin B5 (ca-d-pantothenate)	6 - 12 mg	100 - 200%
Vitamin D3	12,5 - 25 mcg	250 - 500%
Vitamin H (biotine)	0,15 - 0,30 mg	300 - 600%
Magnesium (as magnesium oxide)	72 - 144 mg	19,20 - 38,40%

DOSAGE

Take 1-2 tablets once a day.

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PRECAUTIONS • Do not exceed the recommended daily dose. • Dietary supplements should not be used as a substitute of a balanced diet. • Keep away from young children. • This product is not intended for the prevention, cure or treatment of a human disease. • Consult with your doctor if you are pregnant, breast-feeding, taking pharmaceutical treatment or having health problems.

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