Michael's NATUROPATHIC PROGRAMS
HealthCare Solutions

MEMORY FACTORS®

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Editor's Note

Homo Sapiens are a biological masterpiece. Every human being has the capacity to rapidly comprehend what is taking place in its surroundings, to observe and react to profound and subtle environmental changes, to respond in a calculated and deliberate manner to the things that happen around it and to think and make critical judgments that can often have permanent effects. These amazing abilities are all part of the intricate process that we simply refer to as "life". These abilities are made possible by a seemingly endless number of interdependent factors, including efficient functions that occur in the cells, organs and systems that make up the human body.

Through the process of digestion, assimilation and, ultimately, metabolism, our bodies have the ability to transform simple and complex chemicals and substances found and nurtured in our environment to vital nourishment that enables each of the body's cells to thrive, to repair damage and to perpetuate a healthy existence. Miraculously, the body performs these intricate functions in a state of nearly constant and sustained balance known to modern science as "homeostasis".

Understanding the human body is critical to understanding yourself. We must each have some knowledge about the complex structures and interrelated functions of this profound biological organism in order for us to achieve states of unconditional happiness and optimal health.

Self Care News® is designed to help provide its readers with crucial information about how the body, its structures, and various physiological functions depend so critically on nutrition. When you understand more about how nutrition and human functions are so are so closely interrelated, you will be better equipped to nurture your body into and maintain an excellent state of health.

Every issue of *Self Care News*® will feature vital information about the body's structures, organs, systems and their unique and interdependent functions, in conjunction with details about one or more of **MICHAEL'S**® formulas. These publications will not describe how to treat, prevent or cure any illness or disease. Instead, they will focus on those things that are essential for proper, efficient, healthy functioning of the human body.

MICHAEL'S® formulas are the result of more than two decades of counseling and research into the importance of nutrition in maintaining proper health. Some formulations were created to help family members and cherished friends seeking additional dietary support.

Requirements for nutrition are different in every person, due to health status, dietary habits and the environment. Each one of my unique, synergistic combinations is unconditionally guaranteed to elevate your nutritional status, or your money back. I welcome your thoughts, and most of all, your personal experiences with my **ONE TABLET SOLUTIONS**®.

Be Well,

Michael Schwartz

THE BRAIN

Contrary to what many of us believe, the brain is more than simply that grayish-white mass that sits between our ears. The brain, by definition, includes the spinal cord, which I find most interesting. Combined, the brain and spinal cord make up the central nervous system.

The brain is made up of the cerebrum, cerebellum and brain stem. The cerebrum is the uppermost part of the brain. When the brain is pictured, the cerebrum is the portion with the division in the center. Each one of the hemispheres is known as a cerebral hemisphere. The *corpus callosum* connects them at the bottom. Each cerebral hemisphere is surrounded by a large outer layer known as the cerebral cortex. This is, in reality, the "gray matter" of the brain.[1]

Each hemisphere of the brain is divided into four additional major lobes. Each lobe has a different function within the brain, which contributes toward the total health of the body. The brain stem is the part of the brain that has motor, sense and reflex functions. In addition, it contains the spinal tracts. The 12 pair of nerves from the brain to the rest of the body branch off from the brain stem.

The medulla oblongata follows the brain stem. It continues as the bulb-like part of the spinal cord just above the opening of the skull. The heart, blood vessels and breathing centers of the brain are located within the medulla.

BRAIN FUNCTION INCLUDING MEMORY

Special cells in the brain's mass of complex gray and white tissue either unite or control the functions of the central nervous system. The cerebrum's job involves the sensory and motor functions and those which are linked to the integration of many mental activities. The cerebral cortex has cells that integrate higher mental functions, general movement, stomach functions and behavioral reactions. The cerebral cortex is a very important part of the brain. Research shows that the cerebral cortex has more than 200 different areas and 47 different functions.

MEMORY

Memory is connected with smell in a sense that both of them have functions deep within the temporal lobe of the brain. This is also believed to be a region where thoughts are selected. An interesting fact about the cerebral hemispheres is that the left one is dominant in right handed

people. And those people that are left handed, obviously, have a dominant right cerebral hemisphere. As stated earlier, the cerebrum involves the sensory and motor functions. Therefore, processes involving memory, speech, writing and emotional response would be monitored by it.

Despite the advances in neurophysiology this century, scientists are still uncertain exactly how the function of memory is accomplished by the brain. However, they have been able to discover, in some aspects, how information is acquired and stored. Memory is loosely defined as the ability to recall thoughts.[2] As experiences occur, a process in the brain changes the experience to memory, classifying it as either short term or long term memory. This process is known as an *engram*. Short term memory lasts from only several seconds to several hours. Long term memory can last a lifetime and may be retrieved for use whenever needed.

The brain is selective about which information is stored in long term memory. Some estimates are that only 1% of all information entering the brain is stored in long term memory. If memory captured all the data entering the brain, the brain would be overwhelmed with data. Another unexplained feature of memory is that even when details of the experience are lost, the concept or main idea are retained.

There is some evidence that the function of short term memory depends on electrical and chemical occurrences in the brain. One theory states that memories may be caused by reverberating neuronal circuits, in which one nerve impulse stimulates a second, which stimulates a third, and so on.[3] Once the circuit is formed, the memory lasts as long as the reverberation continues.

Most research in long term memory focuses on anatomical or biochemical changes. Anatomical changes occur in neurons when they are stimulated or made inactive.[4] Studies in nerve synapses show changes in the neurons used for synapses after they have been subjected to prolonged, intense activity. As these neurons age, they grow new endings, which suggest increased use. Interestingly, the nerve endings which are inactive do not grow. In fact, some studies of animals show that the visual area of the cerebrum actually thins after the animal loses eyesight, which would indicate an end to growth of the neurons.

Another direction of memory research is in the area of DNA and RNA study and the possible involvement of nucleic acids. Scientists have proven that these molecules store information and that activated neurons increase in RNA content. When RNA is inhibited, research shows that long term memory will not occur. Since RNA synthesis precedes protein synthesis, these studies might indicate that a relation between synthesis of proteins and the function of memory.

There are many possibilities how neurons and nerve synapses communicate, which would form the chemical exchange in long term memory. Some studies point to the brain's use of receptors, known as NMDA receptors, which open channels into the neurons to permit the inflow of calcium. These receptors then open neurotransmitters and allow for the chemical exchange between neurotransmitters, creating a way to process information related to the formation of memory.

NUTRITIONAL NEEDS

While there are, as yet, no concrete answers to the entire memory function puzzle, it is clear that functions related to neurotransmission play a major part in the process. In order for the brain to function properly, it obviously needs neurotransmitters. A synapse, the point where a nerve signal jumps from one nerve cell to another, cannot function without nutrients like acetylcholine and phosphatidycholine. These are conduits to the electrical impulses that fire between nerve endings. Normally, nerve signals only travel in one direction. These signals are also subject to fatigue, oxygen deficiency, anesthetics and other chemical agents that may be present in the body.

In order for all these transmissions to take place, the brain has to be properly nourished. Unlike other parts of the body where blood is constantly flowing through with all kinds of nutrients, the brain functions differently. The brain is protected by the blood/brain barrier. Basically, the barrier is a feature of the brain that is made up of capillaries. The brain capillaries are constructed of more densely packed cells than other capillaries. These cells are surrounded by large numbers of neuroglial cells and a continuous basement membrane. Together, they form a selective barrier to protect brain cells from harmful substances.[5]

The blood/brain barrier allows the passage of those nutrients that are necessary, provided that they are in appropriate, utilizable form. During the passage through the blood/brain barrier, the brain or the body extracts the nutrients from the blood and passes them on as fuel into the brain. It is interesting to note that about 20% of all the oxygen that is used by the body is utilized by the brain.[6]

For the proper functioning of the brain and systems which support it, the body must be properly nourished.

At the same time, it is necessary for the bloodstream to be free-flowing, so that as much oxygen and nutrients as possible circulate to the blood/brain barrier.

NUTRITIONAL SUPPORT

The following information is provided to help you better understand the role that certain nutrients play in the overall health of the body, brain, and memory function. Those nutrients are:

CHOLINE is important to the metabolism and transport of fats and cholesterol.[7] This nutrient is involved in lecithin formation and normal nerve transmission.

A carrier mechanism within the blood-brain barrier transports free choline into the brain.[8] This carrier is able to carry choline into the brain at the rate that is proportional to serum choline concentration.

S.H. Zeisel, in his article, "Vitamin-like Molecules: Choline," states that choline "is a precursor for the biosynthesis of phospholipids and the neurotransmitter acetylcholine."[9]

ACETYLCHOLINE (ACh)appears to act as an excitatory transmitter between vagal fibers and enteric neurons, between enteric interneurons and between enteric neurons and intestinal smooth muscle.

Vagal fibers are of the vagus nerves. These are the longest pair of cranial nerves. They are essential for speech, swallowing and the sensibilities and functions of many parts of the body.

Enteric neurons are those nerve cells found within the intestines.

Some investigators report that consumption of choline or phosphatidylcholine results in the accumulation of acetylcholine within the brain neurons.[10] Acetylcholine seems to play an important role in the function of memory.

PHOSPHATIDYLCHOLINE is an important contributor to blood and brain choline concentrations[11] which co-determine the rate of acetylcholine biosynthesis, especially during rapid firing of cholinergic neurons.

Cholinergic neurons release a nerve signal carrier (acetylcholine) at the connections of muscles and nerves.

B COMPLEX nutrients are essential for the nervous system function, as well as healthy skin and muscle tone.

VITAMIN B-1 is essential for nerve tissues, muscles, digestion and for the normal functioning of the heart.

VITAMIN B-6 is necessary for healthy skin, the nerves and muscles and aids in antibody formation and digestion.

NIACIN is a B-complex nutrient which is necessary for growth and the proper functioning of the nervous system.

PANTOTHENIC ACID is essential for growth, contributes to energy production, and is necessary for the skin.

UNSATURATED FATTY ACIDS are essential for growth, but can not be synthesized by the body. Of the essential fatty acids, only linoleic acid must be included in the diet. The others, linolenic and arachidonic, can be synthesized in the body with linoleic acid.

VITAMIN E protects fat-soluble vitamins, and maintains healthy nerves and muscles while strengthening the capillary walls.

SELENIUM is necessary for tissue elasticity, and works with Vitamin E. Like vitamin A, C, and E, it is an antioxidant.

HOW TO OBTAIN NUTRITIONAL SUPPORT

MICHAEL'S® MEMORY FACTORS® contains nutrients the body uses in enzymatic transactions affecting neurotransmitters.[12,13] **MICHAEL'S® MEMORY FACTORS®** contains the nutrients mentioned above, complemented by herbs and amino acids known for healthful attributes.

Like every **MICHAEL'S®** nutritional supplement, **MEMORY FACTORS®** is manufactured with all-natural fillers, binders and coating. In addition, all of Michael's products are free of yeast, sugar, and starch. Some products are dairy, soy and wheat free too.

DID YOU KNOW?

Water makes up 20 to 80 percent of most bodily tissues and as much as 85 percent of brain tissue. If all the water were drained from a 160 pound man, his dehydrated remains would weigh only 64 pounds.

Only seventeen muscles work to make a smile, while a frown requires forty-three.[14]

About MICHAEL'S® Products

Seasoned health food shoppers already know that a combination of nutrients is always more effective than taking single nutrients one at a time. Add in the cost savings of taking combinations, with herbs included, and the math proves to be more efficient, too. Combinations increase assimilation and reduce the amount of binders and fillers. That's why **MICHAEL'S®** created the **FACTORS OF LIFE®** programs. Your life is busy enough as it is. Why worry when synergistically complete nutrition is conveniently at hand?

MICHAEL'S® products include an expiration date to ensure freshness. He personally guarantees purity and specified content. Each product is hypo-allergenic with no artificial colors or flavors. The formulas contain cold-pressed or organically grown (when available) herbs to ensure the highest quality. Additionally there is no sugar, wheat, corn, gluten, sodium, or anything artificial in any of our supplements. These high-potency, all-natural products are even manufactured with food-grade fillers, binders and enteric coatings. Most are suitable for vegetarians and tell you so right on the front label. Every product is double safety sealed with an outer shrink wrap and inner bottle freshness seal. As is normal in all-natural products, some color and texture variations may occur, but do not affect product purity, potency or assimilation.

Above all else, all **MICHAEL'S® NATURO-PATHIC PROGRAMS** are designed to produce physical results you can feel, due to the innovative nutritional supplementation with specific, targeted **FACTORS OF LIFE®** programs. As always, the newest developments, the finest ingredients and the most effective formulations for your total healthcare from **MICHAEL'S® NATUROPATHIC PROGRAMS**.

Michael's® NATUROPATHIC PROGRAMS

Memory Factors™

Supplement Facts
Serving Size: One (1) Tablet

Amount Per Serving		% Daily Value
Vitamin E (as d-alpha Tocopheryl Succinate)	67 IU	222%
Thiamin	33 mg	2220%
Niacin (as Nicotinic Acid)	33 mg	167%
Niacinamide (as Nicotinamide)	67 mg	333%
Vitamin B-6 (as Pyridoxine)	10 mg	500%
Folic Acid (as Folacin)	33 mcg	8%
Pantothenic Acid (as Calcium Pantothenate)	3 mg	33%
Magnesium (as Magnesium Amino Acid Chelate)	33 mg	8%
Zinc (as OptiZinc**)	3 mg	22%
Selenium (as L-selenomethionine)	33 mcg	48%
Manganese (as Manganese Amino Acid Chelate)	3 mg	167%
Gotu Kola Herb (Centella asiatica)	100 mg	*
Lecithin (from Soy)	100 mg	*
Choline (as Choline Bitartrate)	100 mg	*
Inositol	100 mg	*
Club Moss (Whole Plant)(Lycopodium clavatum)	67 mg	*
Essential Fatty Acids (from Flax Seed) (7% gamma Linolenic Acid, 64% Linoleic Acid)	33 mg	*
Ginkgo biloba (Leaf)	33 mg	*
Glutamine (as L-Glutamine)	33 mg	*
Methionine (as L-Methionine Hydrochloride)	17 mg	*
Tyrosine (as L-Tyrosine)	8 mg	*
Taurine (as L-Taurine)	8 mg	*
Phosphatidylcholine (from Soy)	8 mg	*
PABA (Para-aminobenzoic Acid)	3 mg	*

*Daily Value not established.

**A Trademark of InterHealth Co.

OTHER INGREDIENTS: Dicalcium Phosphate, Stearic Acid and Magnesium Stearate.

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