

International Institute of Nutritional Research *Activator* Product Overview

*This product is a rich source of DMG (di-methyl-glycine) and synergistic enabling nutrients to create an abundant pool of methyl groups to **ACTIVATE** the over a **billions** biochemical and physiological reactions **PER SECOND** that are required for optimum health and regeneration of health.*

WHEN MISSING -THIS NON-VITAMIN NUTRIENT MAY CAUSE MORE HEALTH PROBLEMS THAN ANY VITAMIN KNOWN!

In their best selling and highly acclaimed book, “*Prescriptions for Nutritional Healing*, 3rd ed., James Balch, M.D. and Phyllis Balch, C.N.C. list 48 different health problems that are frequently the result of a missing biochemical unit known as a methyl group. Methyl groups are obtained from specific nutritional components in our diet IF they are in sufficient supply, and IF we have the needed co-enzymes to obtain them from dietary sources. Unfortunately many people do not get enough food sources for methyl groups, or they do not have the needed biological machinery to obtain them from food, or utilize them once they have them. This is how we end up with the following list of 47 health conditions where missing methyl groups are often the key factor. The list is given in a consecutive order, listed by page number as they appear in the book:

133 – Aging	434 - Herpes Virus Infection
141 – AIDS	456 - Impotence
150 – Alcoholism	463 - Infertility
187 – Arteriosclerosis	491 – Leg Ulcers
190 – Arthritis	507 – Memory Improvement
197 – Asthma	510 – Meningitis
206 – Autism	519 - Migraine
223 - Breast Cancer	522 - Mononucleosis
236 – Bruising	531 – Muscle Cramps
250 – Cancer	559 – Parkinson’s Disease
270 - Cardiovascular Disease	592 – Prostate Cancer
288 - Chronic Fatigue Syndrome	604 – Raynaud’s Disease
291 - Circulatory Problems	613 - Schizophrenia
293 - Cirrhosis of the Liver	616 - Seborrhea
333 - Down’s Syndrome	617 - Senility
343 – Emphysema	629 – Skin Cancer
353 – Epilepsy	637 – Smoking Dependency
375 – Fibromyalgia Syndrome	642 – Spider Bites
391 – Gangrene	643 – Sprains, Strains, Muscle Injuries
402 – Hair Loss	651 - Sunburn
408 – Headache	672 – Varicose Veins
419 – Heart Attack	675 - Vertigo
427 – Hemorrhoids	682 – Weakened Immune System
431 - Hepatitis	

International Institute of Nutritional Research

Activator Product Overview

MURPHY'S LAW AND THE MISSING LINK

We have all heard of the famous Murphy's Law - "*If something can go wrong, it will!*" Nowhere is this more true than in the billions of biochemical and physiological reactions that are occurring in the human body each and every second. None of these billions of reactions stands alone. Each is a part of a chain of reactions, and the links in these chains are made up of the nutrients that we take into our body. *Like any chain, when even one nutrient link is missing, the chain is incomplete and it fails to complete its mission.*

There is an old saying that illustrates the importance of missing just one link in the chain: "For the want of a nail, the horseshoe is lost, and for the want of the shoe, the horse is lost, and for the want of a horse, a warrior is lost, and for the want of a warrior, the battle is lost." Nowhere is this truer than with the nutritional elements required by our body.

MISSING NUTRIENTS CAUSE POOR HEALTH AND DEATH

When the required nutrient for a specific biochemical reaction is missing, Murphy's Law enters the picture, for now something can and will go wrong. A needed biochemical or physiological reaction required for health will not take place, and the body will suffer. If this occurs frequently enough, health will fail and death will occur.

We all know that if we fail to get the nutrient oxygen for even a few minutes, the brain and body will die. If we fail to get the nutrient water for even a few days the brain and body will die. Science has shown that many nutrients, such as vitamins A, C, D, B1, B2, and B3 have been shown to lead to specific disease states, and eventually death when they are missing to such an extent that the biochemical and physiological reactions they are required for, cannot be completed.

AIR – WATER – AND METHYL GROUPS

The simplest nutrients to promote abundant energy, good health, and even life itself are the element Oxygen derived from the air we breathe, and water that is made up of just Hydrogen-Oxygen-Hydrogen. It now turns out that another vitally important nutrient is similar to oxygen and water, it is made up of the simplest of elements and is required in almost as many biochemical and physiological reactions in the human body as they are. It is made up of just two elements Hydrogen and Carbon, arranged like this:

Hydrogen	Carbon has four electrical bonds, and as you can
Hydrogen-Carbon-Hydrogen	see, it uses up three of those bonds uniting with
Biological Molecule	Hydrogen. One on each side, and one above. This

leaves one electrical bond free to attach to a biological molecule in the body chemistry *that requires it in order to function as it should.* But, what if this biological molecule cannot find a methyl group to attach to it? *Then the biological molecule cannot perform its important function. It fails to do its job.*

Is this serious? When you consider the fact that scientists tell us that *over one billion biological reactions are occurring in our body every second that depend upon methyl groups being present to allow them to happen, we can quickly see that it is very serious if we are missing very many of these methyl groups.*¹ When missing large numbers of methyl groups, millions of biological reactions each second will not take

International Institute of Nutritional Research

Activator Product Overview

place, and as we already saw from the list on page one, very serious health problems can occur, and eventually death if the problem is not corrected.

METHYL GROUPS ARE DERIVED FROM THE DIET

Just as with most of the nutrients our body requires, methyl groups are obtained from the food in our diet. But as the old saying goes, “there is no such thing as a free lunch” and the same is true for methyl groups. They aren’t just floating around in the food we eat waiting for us to absorb and use them. They are attached to the molecules that make up the food we eat and we have to extract these molecules from the food. Then in the liver we have to remove the methyl groups from the food derived molecules.

The food derived molecule that provides most of our methyl groups is Choline.²

Unfortunately most people on modern diets do not get enough of this nutrient, and so the liver has to work harder to get methyl groups from other molecules as well.

The liver needs so many of these methyl groups for the billions of biological reactions it must perform every second, it creates a large pool of them. On the one side of the pool is the “inlet”, where the liver places the methyl groups it has removed from Choline and other food born molecules. Naturally this takes a lot of work and requires billions of liver enzymes to do this job. But the enzymes cannot do the job alone. They need what are known as co-enzymes, or co-factors, which in reality are other nutrients we are more familiar with. **The most important of these are Vitamins B1, B2, B3, B 6, B12, Folic Acid and the mineral Magnesium.**³ The problem here is that many people just do not get enough of these nutrients in their diet, and without these co-enzyme factors the enzymes are simply not able to remove the methyl groups. When this happens, the pool of methyl groups in the liver *begins to shrink*.

On the other side of the liver’s pool of methyl groups is the “outlet” where billions of additional liver enzymes are busy attaching these methyl groups to important biological molecules used by the body to perform the myriads of reactions required to create life and good health. These enzymes also need nutrient co-enzyme factors to attach the methyl groups to these biological molecules, and it just so happens that they are the same nutrients used by the enzymes that remove methyl groups.

MISSING NUTRIENTS MEAN MISSING METHYL GROUPS

Suppose your diet is woefully inadequate in choline. Well in that case your liver would just get its methyl groups from other food source molecules. But it would require a lot of additional work and even more co-factor nutrients to work with the additional enzymes that would be needed. Even if you had plenty of choline in your diet, if you were inadequate in the co-factor nutrients that serve as co-enzymes, the reactions to remove and attach the methyl groups would fall short, and health would suffer.

The lack of sufficient methyl donor molecules in our food, and the lack of co-enzyme nutrients in the convenience food diet of our modern world is leading to reduced pools of methyl groups in the liver of billions of people in the advanced nations of the world. This is producing the staggering variety of health problems listed on page one.

The bottom line is, you cannot have good health if your body is short on methyl groups.

International Institute of Nutritional Research

Activator Product Overview

Fortunately with the ACTIVATOR formula we have a way to correct this problem and supplement the diet with both a rich source of methyl groups, as well as all the synergistic nutrients required to serve as co-enzymes. This makes it possible for the body to both obtain and attach methyl groups in a timely manner to the billions of biological molecules requiring them to produce life and health. *Because all of the nutrients in the formula are needed by the body in the same place, and at the same time, their total availability in the formula makes the end result far more powerful and effective than just the mere sum total of each individual part that makes up the formula.* Before we get into looking at this in more detail, we will examine what science has to say about:

METHYL GROUP SUPPLEMENTS AND SPECIFIC HEALTH PROBLEMS

It is incumbent upon me to point out that were it not for the pioneering breakthrough research work of **Dr. Roger V. Kendall** over the past 38 years dealing with *di-methyl-glycine*, leading to the ready availability of methyl group supplements, and our knowledge of what to use them for, *none of this would be possible.* I encourage everyone interested in learning more, to read his wonderful book, *“Building Wellness with DMG”* published in 2003 and available in major book stores everywhere.

The order in which the important relationship of methyl groups and specific health problems is given below is alphabetical and is in no way intended to imply that one is more significant or important than the other. It is impossible in this brief publication to go into detail on all the 47 health conditions listed on page one. This report will look at only those conditions that seem to involve the greatest numbers of people.

ATTENTION DEFICIT HYPER ACTIVE DISORDER (ADHD)

This is a condition generally diagnosed in early grade school years and which often continues on into adult years. It is characterized by a lack of ability to focus on completing any undertaking before being mentally diverted to pursue another activity. On the surface it would appear the signals within the brain are traveling too fast to allow the individual to stay focused. However, scientists have found that the exact opposite is the case. The signals within the brain are traveling too slow, and hence are unable to continue on to reach the desired mental objective in a timely fashion before wandering off into another pathway. The condition, which was quite rare 60 years ago, has now reached near epidemic proportions.

The medical solution to the problem is to give these children prescriptions for drugs that speed up the signals within the brain. While this approach does solve the problem, it also causes the child to develop a life long drug dependency and suffer the wide range of adverse side effects that develop as a result of long-term drug use.

The famous pediatrician Dr. Lendon Smith has found that using nutritional supplements that help to normalize brain signal transmission is often just as effective as the drugs in resolving the problem without any of the harm associated with the drugs.⁴ At the date of the interview, Dr. Smith had not yet used DMG, however the nutrients he found most effective for ADHD are: Vitamin B-6, Folic Acid, B-12 and the mineral magnesium. It is very interesting that *these are the exact same nutrients required to attach methyl groups to brain neurotransmitters that regulate the speed of nerve transmission and there access to brain and nerve cells.* The neurotransmitters dopamine,

International Institute of Nutritional Research

Activator Product Overview

epinephrine and norepinephrine *all must have a methyl group attached in order to activate them, otherwise they are inert and inactive.*

Dr. Roger V. Kendall who has been studying DMG for the past 38 years states that in addition to its previously mentioned role in activating neurotransmitters, DMG is also a key factor in facilitating the actual production of neurotransmitters. The brain protects itself from an overdose of many nutritional compounds with what is known as the blood-brain barrier. However the brain's demand for methyl groups is so high, that DMG is able to pass freely from the blood directly into the brain.⁵

To date, no definitive scientific research has been done to establish the direct connection between supplying methyl groups derived from DMG and the synergistic nutrients required for their use in relieving ADHD. However, in an article appearing in a 2002 issue of the International Journal of Integrative Medicine, Drs. Brue and Oakland indicates that evidence shows that while not working for everyone, *supplying all of these nutrients has solved the problem of ADHD for a great many children and adults.*⁶

AUTISM

This is a condition in which children, generally in the first 30 months of life show no interest in what is going on around them. They frequently show no desire to speak or communicate with others and they seem totally emotionally unattached. They often seem to have a high level of insensitivity to pain, and often exhibit repetitive self induced injuries, almost as if to gain some sense of contact with the world outside their own body.

The rapidly developing epidemic of children with autism is one of the great tragedies of our time. The increase in the number of diagnosed cases in just the past two years is staggering. In California alone the number of children with severe autism *jumped by 31% between the years 2001 and 2002.*⁷

Just as great a tragedy as this explosion in the number of cases of autism is the fact that the scientific and medical communities have no firm understanding of what causes the condition or what to do about it. Here are a few of the interesting things about this condition that are known:

- Dr. Andrew Wakefield, a London, England pediatrician has found live red measles particles in 80% of the gastrointestinal tracts of autistic children he has examined.⁸
- In 1940 when autism was extremely rare, the number of vaccines given to children prior to the age of 2 was 3, but by the year 2000 as autism explodes, the number of vaccines given before the age of 2 had risen to 22.⁹
- Studies reveal that 85% of autistic children have an overgrowth of yeast, viruses and pathological bacteria in their intestinal tract.¹⁰
- The immune system of autistic individuals shows distinct abnormalities, with decreased macrophage activity, a decrease in Natural Killer cell activity, and a lower level of B and T white blood cells. This is also accompanied by an increase in cytokines that increase inflammation and sensitivity, which is frequently accompanied by autoimmune antibodies.¹¹

Dr. Bernard Rimland became interested in Autism when his own son was diagnosed with the problem in the early 1970's, and as a result of this he has dedicated his life to finding the cause and solution to this problem. He is the President of the Autistic

International Institute of Nutritional Research

Activator Product Overview

Research Institute in San Diego, CA. and through that vehicle has been doing research into autism and publishing his findings for the past 30 years. He is now considered a world authority on the condition and served as a consultant on the “Rain Man” movie about an autistic savant, and starring Dustin Hoffman and Tom Cruise.

After researching DMG, Dr. Rimland began giving it to his own son and saw major improvements in his communication and social skills. As a result he began recommending DMG to thousands of parents of autistic children through his Institutes Newsletter. In the April 2002 issue of that newsletter he reports the results of **21,500** parents of autistic children who has used different forms of nutrition to help their children. ***Nearly 50% of those who gave DMG to their children reported significant improvements that included:*** improved affection, improved ability to sleep, improved ability to establish eye contact, improved verbal communication, improved social skills and a reduction in seizures.¹²

- Dr. Stephen Edelson of the Center for the Study of Autism, Salem, OR has also found in his own work, that half of all autistic individuals respond favorably when given supplements of DMG.¹³
- The original discovery of the benefits of DMG on autism were found in Russia in 1965 when calcium pangamate (the forerunner of DMG), improved the speech of 12 of 15 autistic children.¹⁴
- In 1975 Dr. Allen Cott, began using the calcium pangamate that he brought back from Russia with 9 autistic children. He reported that his results were almost identical to those of the Russian doctors.¹⁵
- Dr. Lee Dae Kun of Pusan Research Center on Child Problems in Korea published his findings in 1990 that of 39 children with autism that were given DMG there was an 80% improvement in virtually all symptoms of the condition.¹⁶
- In Taiwan in 1997, Dr. Shin-siong Jung did a double blind, placebo controlled study on 84 autistic children at the Taipei Springtide Foundation. He used five scales to evaluate the children and found a significant improvement on all five scales for those on the DMG, while those on the placebo showed only modest improvement on the lethargy scale.¹⁷

It is clear from both the formal and informal studies that *nearly half of all autistic children will benefit significantly from supplements of DMG.* What is DMG doing that it can provide so much benefit for these children? It is really quite simple. We know that the intestinal tract of most autistic children have a great many harmful microorganisms located there that are producing toxins. These toxins go directly to the liver, where they soon tax and overwhelm the two detoxification systems of the liver in babies and small children.

This excessive burden on the liver depresses its ability to create an adequate pool of methyl groups, without which millions of enzyme reactions cannot take place. This in turn depresses the ability of the immune system to function properly, it drops the energy level, and *it lowers the level of active hormones and neurotransmitters in the brain and central nervous system.* In this report, the significant message is - these vital neurotransmitters are inert and ineffective unless they are **activated** by having methyl groups attached to them.

International Institute of Nutritional Research

Activator Product Overview

DMG supplements increase the size of the methyl group pool in the liver. This in turn allows millions of biochemicals to receive methyl groups so their reactions can occur normally. This improves the liver's ability to: **1.** neutralize toxins, **2.** normalize immune function to create a healthier microbial flora in the intestines, and **3.** elevate the level of active neurotransmitters in the brain and central nervous system to restore brain and cognitive function.

The author of this report believes the improvements would have been even greater in these studies, and have benefited more children, had they been given the *Activator* formula with all of the essential synergistic nutrients required for the use of the DMG. *The effectiveness of DMG is greatly magnified when all the synergistic and enabling nutrients required for transmethylation are available at the same time.* Transmethylation simply means the removal of methyl groups from a donor molecule and transferring it to the receptor molecule that will now *become active because of it.*

This author also believes many more children would respond with even greater results were they also given the Healthy Colon Formula, Lipoic Synergy and the Liver Support and Detox formulas as well. This would provide greater support to normalize the microbial balance and function in the intestinal tract, and bolster the liver's ability to deal with intestinal toxins (eliminating the risk of post hepatic intoxication of the brain).

Normally I just "stick to reporting the facts". However, reading some of the testimonials sent from overwhelmingly grateful parents to Dr. Rimland and Dr. Kendall, after giving their children DMG has made it very clear that the human side of the story is just as important as the scientific side. These parents have seen life changing results that have *transformed their previously rebellious and totally uncooperative child without the ability to love or speak, and allowed them to begin improving dramatically within days of taking DMG supplements, and then to go on to create a nearly normal child out of what were near zombies before.* After reading so many of these accounts, I cannot resist saying that *no autistic child and no parent should ever be denied the opportunity to have their autistic child undergo a long term trial of taking the Activator formula.*

CANCER

This is a condition where some of the cells of the body become abnormal and then begin reproducing wildly out of control. Eventually some of these cells may enter the blood stream and spread throughout the body and take up residence in new locations where they then grow and multiply. Currently in the U.S. one and a third million new cases of cancer are being diagnosed each year, and slightly over one half a million people die from the condition each year. It is a condition that occurs with increasing frequency as we age. It is said that every man will eventually develop prostate cancer, all he has to do is live long enough for it to happen. Men develop cancer at a rate of about one in every two, while women develop cancer at a rate of about one in every three. In the United States, *slightly more than 1,500 people die from cancer every day.*

MANY CAUSES The cause of cancer is believed to be due to damage to structures within the cell, and especially the DNA that make up the nucleus of the cell. About 5% of this seems to be caused by inheriting weak and abnormal genes from our ancestors. The balance, or 95% of damage seems to be caused by a variety of things: * nutritional deficiencies that prevent the cell from repairing itself and growing normally * toxic

International Institute of Nutritional Research

Activator Product Overview

chemicals from outside the body, or those that come from within our body that are not neutralized * free radical damage, from the diet high in chemicals in the food or beverage, but primarily from our own metabolism when not enough antioxidant nutrients are available * radiation from medical and industrial sources * many other factors of a lesser incidence rate.

In a more natural environment where the air, water and environment are purer, and the diet is free from artificial ingredients, where there are no toxic chemicals or radiation from industry, and there is a low level of lifestyle stress, humans have a very low incidence of cancer that reaches the point of creating illness and death. These individual do develop cancer cells, but the rate at which they develop is low, and the methods the body has developed to deal with them is sufficient to destroy them before they can cause illness.

NATURAL DEFENSES It is known today that the following are some of the natural methods the body has of destroying cancer cells before they can create illness: * the DNA will repair damage that is done to its structure * abnormal cells will commit suicide without reproducing * chemicals produced by the immune system will kill abnormal cells * Tumor Necrosis Factor-alfa will seek out and destroy budding tumors and mobilize further immune defenses * specific white blood cells will seek out and destroy abnormal cells.

It turns out that a key factor in all of the above natural defense mechanisms that prevents the development of cancer cells and facilitates their destruction once they begin to grow, is the wide ranging application of methyl groups in every step of this defense and immune process. Having plenty of methyl groups available along with their synergistic enabling nutrients is a vital key in allowing all of these natural defenses to function as they should, and can be the difference between winning and losing the battle against cancer.

DMG RESEARCH WITH CANCER Given below are some of the ways science has learned that DMG prevents and reverses cancer:

- Russian scientists were the first to discover the protective effects of DMG against the cancer causing damage of radiation. They took rabbits and guinea pigs and divided them into two groups, one group received no DMG and were then exposed to X radiation. After which, when exposed to pathogenic microorganisms they all became ill due to their immune system having been impaired by the radiation. On the other hand, animals given the DMG (administered as calcium pangamate) prior to and after the radiation who were exposed to the same pathogenic microorganism did not become ill. *Their immune system had been protected from the radiation by the DMG.*¹⁸

- With encouragement from Dr. Roger Kendall, Dr. John W. Lawson at Clemson University did research work with a graduate student to see if they could demonstrate an improved immune response due to DMG. Rabbits were immunized with either typhoid or influenza shots and then half were also given supplements of DMG. At the end of two months, the effectiveness of their immune systems in response to the vaccinations was measured. Dr. Lawson said, "When the results came in I was amazed." *Those animals given the DMG were found to have a significant increase in their antibody and immune protection versus those not given the DMG.*¹⁹

International Institute of Nutritional Research

Activator Product Overview

- Encouraged by these results Dr. Lawson and associates at Clemson University went on to inject mice with melanoma cancer cells. Half the group of mice received DMG supplements and half did not. After just 8 weeks all of the mice without DMG had died with extensive spreading (metastasis) of the cancer throughout their body. However all of the mice given DMG lived and the melanoma cells **did not spread beyond the site of the injection** of them into the animals, indicating that DMG had **“prevented the spread of the tumor.”** Ultimately 71% of the mice given the DMG totally survived their cancer injection and lived a normal life span. Based on this a patent was awarded for the use of DMG as a treatment against melanoma cancer.²⁰

- Work done by Dr. J. Locker and team in 1986 demonstrated that when rats are fed a choline deficient diet (choline is the primary dietary source of methyl groups) they developed cancer of the liver. ²¹

- Following up on this line of research, Dr. M. Dizik and fellow scientists in 1991 found that a diet deficient in methyl group sources led to a loss of methyl groups in the DNA and an alteration of gene expression that led to cancer.²² Continuing in the same vein, in the following year, 1992, Drs. E. Wainfan & L. Porier reported in the journal Cancer Research, that they also found that a lack of methyl groups in the diet caused DNA to be unable to maintain its methylation, producing altered gene expression and cancer.²³

- Dr. J. Christman and associates found in 1993 that when rats were fed a diet deficient in sources of methyl groups it caused the DNA of liver cells to lose their methyl groups, altering gene expression in those cells leading to liver cancer. However they found that by increasing the dietary source of methyl groups (through such rich sources as DMG), the liver cells' DNA was able to incorporate methyl groups into the genes and reverse the damage, thus preventing cancer.²⁴

- In 1995 Dr. A. Rogers reported the results of his research in which lab animals fed a diet deficient in methyl donors had a high rate of cancer when they were exposed to a wide variety of different chemicals.²⁵

- The team of Drs. M. Niulescu and S. Zeisel reported in 2002 they had been able to demonstrate in their lab that cancer protecting methyl groups on cellular DNA was dependent upon an adequate dietary source of choline and folic acid, and that lacking those nutrients in the diet, the DNA lost their methyl group protection, gene expression would then become altered and the cells became cancerous. However, they also reported this was reversible when those nutrients were restored to the diet in adequate amounts.²⁶

What we have just seen from the scientific research is that cancer develops in animals that do not have enough methyl donors or supporting nutrients in their diet. As a result of a lack of these nutrients the cancer develops: * either from exposure to radiation,* free radicals, * cancer causing chemicals, * from microorganisms, * or a lack of enough methyl groups on the cellular DNA which allows abnormal gene expression to create a cancer cell. What is truly amazing is that these researchers were able to demonstrate that when a rich dietary source of methyl groups was given to those animals that had developed cancer, virtually all of them lived, and most of them recovered completely.

There is one more important protective effect that DMG provides against the development of cancer that we need to look at. This is the role of oxygen utilization and depletion in the cell, and its role as a cause of cancer. In 1932 Dr. Otto Warburg received

International Institute of Nutritional Research

Activator Product Overview

the Nobel Prize for his discovery that cancer never develops in a cell that is utilizing oxygen respiration for its source of energy creation. **Cancer only develops in cells that have lost this ability in their mitochondria (the energy factory of the cell) and have switched to fermentation for generating energy.**

As early as 1958, Drs. C. MacKenzie and W. Frisell had published the results of their study which demonstrated *that methyl groups were essential to the mitochondria for the creation of energy via the oxygen respiration cycle. They further demonstrated that supplements of DMG would greatly enhance this ability, even in the face of reduced oxygen in the cell.*²⁷

In 1978 Dr. Jerzy Meduski at the University of California, San Diego began a series of research projects in which he was able to demonstrate that under a wide range of conditions, from a low oxygen environment, or hyper stressful conditions that greatly depleted cell oxygen, to muscle exercise to cell oxygen depletion, all resulted in a build up of lactic acid in the cells. When lactic acid levels are high in the cell, the mitochondria switch to fermenting it to create energy, a condition ideal for the development of cancer. *However, those animals that were given supplements of DMG and undergoing the same exact conditions of oxygen depletion did not develop high levels of lactic acid. Their mitochondria were able to continue to develop energy through the respiration process using oxygen and their cells were thus protected from becoming cancer cells.*²⁸

In spite of this research conducted by responsible scientists at major universities with the results published in respected scientific journals, the established cancer industry has refused to examine this very effective and inexpensive approach as a means of preventing and reversing cancer in humans.

However, Dr. Roger V. Kendall who is the world's leading authority on DMG, in his wonderful book "Building Wellness with DMG" shares the cautious experience of some practicing physicians using DMG with cancer patients. Drs. Jim and Janine Fox have found that DMG supplements have sufficiently bolstered the immune system of cancer patients undergoing chemotherapy so that *the loss of immune protection that accompanies such treatment is prevented.*²⁹ Dr. James Frackelton reports his experience has been identical. He gives those of his patients undergoing conventional cancer treatment from an oncologist, supplements of DMG, which he has found *protects their immune system and keeps them healthy.*³⁰

Dr. Kendall also shares a letter from a 55 year-old man with cancer, who was far more daring than any practicing physician would ever dare to be with DMG in today's medical environment. The gentleman tells of a massive benign tumor that was blocking his colon. He began taking large amounts of DMG and used no other treatment regimen. At first his progress was monitored with monthly biopsies. After a few months he dispensed with the biopsies. When he was reexamined three months later, *the doctors were amazed to find there was no evidence of the tumor, not even scar tissue.*³¹

It is clear from the hundreds of scientific research papers published showing that supplements of DMG provide a protective and recovery effect to the cells and tissues of animals against cancer as a result of every type of insult and injury that normally produces cancer and promotes its continued growth, that in the highly carcinogenic environment of today, humans would benefit greatly from supplements of DMG. *By providing not only DMG, but also all the essential synergistic nutrients required as*

International Institute of Nutritional Research

Activator Product Overview

cofactors for its availability to the massive number of biochemicals throughout the body that require it, the Activator formula is the ideal source for such a supplement.

CARDIOVASCULAR DISEASE – HEART ATTACKS

America's number one killer is cardiovascular disease. What people dread most about having a heart attack is that most of the time it is fatal. What most folks do not realize is that the heart attack which seems so sudden, is actually the end result of a cardiovascular disease they have had, and often been unaware of, for many years. The problem we hear about most often as a cause of these cardiovascular conditions is an elevated level of what are called blood lipids or fats, which are better known as triglyceride and Low Density Lipoprotein (LDL Cholesterol).

LDL Cholesterol is dangerous because it is easily oxidized into a free radical that damages the inner wall of the arteries causing plaques to form which thicken the arterial wall, elevating blood pressure, restricting blood flow and eventually breaking loose and creating clots which can turn into strokes or heart attacks.

What we seldom hear about is a blood chemical known as homocysteine, and which when elevated is even more dangerous as a cause of cardiovascular disease and heart attacks than is LDL Cholesterol. What is really quite shocking is that while teaching and researching at *Harvard University Medical School, Dr. Kilmer McCully discovered that elevated homocysteine is a far more frequent cause of cardiovascular disease than is the elevated blood lipids normally blamed for the problem.* At first denied by the medical community, his discovery has now been verified and accepted at top medical institutions around the world.

Homocysteine is an amino acid metabolite, an intermediate in the metabolic chain involving the body's use of the amino acid methionine. *It becomes elevated when the nutrients required for its processing back into methionine are missing.* Generally the missing nutrient is either vitamins B-6, B-3, folic acid, vitamin B-12, or possibly magnesium. What these nutrients do, is work as coenzymes in attaching methyl groups to homocysteine in order to recycle it back into methionine. But it has been found that *in some cases elevated homocysteine develops, even when these nutrients are supplied in adequate amounts.*

For these people, the problem results when there are too few methyl groups available from their diet, for these nutrients to have any methyl groups to work with. As a result, *without the methyl groups being available the body cannot convert the homocysteine back into methionine.*

In 1992, Dr. S. Kang and associates reported their findings that the reason elevated homocysteine is such a problem, is that it is even more of a dangerous and damaging free radical than is LDL Cholesterol, and it causes even greater damage to arterial walls, creating even more plaque. **Even if LDL levels are low, if homocysteine is elevated, the damage to arterial walls is severe and cardiovascular disease develops and heart attacks follow.**³²

Fortunately Dr. Roger Kendall reports in his book, that clinical studies have shown that ***supplements of DMG lead to a rapid reduction of blood levels of homocysteine,*** and that dramatically reducing cardiovascular disease and the risk of a heart attack.³³

International Institute of Nutritional Research

Activator Product Overview

Not only do DMG supplements reduce the dangerous homocysteine to safe levels, but they also lower elevated blood lipid levels to normal. As far back as 1968, the Russian cardiologist Dr. L. Baranova reported the results of his work with cardiac patients taking DMG as calcium pangamate, that demonstrated *a remarkable lowering of the dangerous LDL Cholesterol and elevated triglycerides to health supporting levels.*³⁴

Working in conjunction with DaVinci Labs and Food Science Corp., cardiologist Mitchell Pries, M.D. used DMG supplements in clinical trials on *over 400 cardiology patients.* Dr. Kendall states in his book that Dr. Pries observed the following conditions improved in his cardiology patients using DMG supplements: * **angina pectoris**, * **arrhythmias**, * **high blood pressure**, * **elevated cholesterol**, * **elevated lipoprotein**, and * **insufficient circulation.**³⁵ The dangerous LDL Cholesterol declined to safe levels for those on DMG and **their HDL Cholesterol rose to a level that provided protection**, while their triglyceride also declined to a very safe level of 110 mg/dl. Those patients in the control group receiving a placebo obtained no such improvements.³⁵

For the person with an existing cardiovascular condition, there is generally a significant reduction in the availability of needed oxygen to the cells and tissues of the heart and the rest of body. For them supplements of DMG bring rapid and significant improvement in their body's ability to use the limited amount of available oxygen, thus gaining an increase in energy and stamina even before it brings about improvements in blood lipids or arterial damage. This fact was abundantly demonstrated by a great many studies by Russian doctors with cardiology patients which demonstrated that **DMG supplements substantially increases the ability of a damaged or weakened heart to utilize the currently available oxygen even before other healing has occurred.**³⁶

In his wonderful book on DMG, Dr. Kendall shares testimonial letter after letter from grateful people, including physicians, who have had heart attacks and strokes, often several, and who were on various drugs and virtually incapacitated with pain, fatigue and confusion. Then they heard about and began using DMG supplements. *Within a week or two their symptoms began to clear and they were able to resume their normal life, even though most of these people were very elderly at the time.*

Clearly, the individual who wants to prevent the development of cardiovascular problems, high blood pressure, heart attacks and strokes, will find that supplementing their diet with the *Activator* formula is the ideal solution since it contains all the key nutrients required to provide a wide range of protection. For the individual who has elevated levels of homocysteine, triglycerides and LDL cholesterol it is the ideal formula to lower them and elevate the protective HDL. It is also the ideal formula for the individual who already has advanced cardiovascular problems, because the nutrients in the *Activator* formula have been shown to *improve angina, arrhythmia, blood pressure, and insufficient circulation.* While at the same time allowing the compromised tissues to immediately be able to make better use of the oxygen that is available to their body, *increasing their level of energy and activity as well as their sense of well-being.*

DIABETES - HYPOGLYCEMIA - SYNDROME X - ENERGY - STAMINA - SPORTS

It used to be thought that there was only one kind of abnormal sugar metabolism and it was known as Juvenile Diabetes because it began in infancy or early childhood. Today there are at least four major categories of disturbed sugar metabolism, they are:

International Institute of Nutritional Research

Activator Product Overview

Hypoglycemia, Syndrome X, Adult Onset or Type II diabetes, and Juvenile or Type I Diabetes. At least 55% of the North American population is believed to have one of these disturbed sugar metabolism problems. **The vast majority of diabetics, at over 90%, are the direct result of eating too many foods that are refined carbohydrates.**

Hypoglycemia is the first condition to develop and it is the result of the pancreas putting out too much insulin too quickly in an attempt to lower the blood sugar to normal as a result of eating too much refined carbohydrate at a meal. This causes the blood sugar to plummet at times below what is required for healthy brain and energy function.

Syndrome X was originally identified by Dr. Gerald M. Reaven at Stanford University in 1988. This condition occurs after the individual has been Hypoglycemic for some time. **The long term elevated levels of insulin produced by Hypoglycemia leads to elevated levels of blood fats and the depletion of nutrient co-factors to utilize insulin at the cell level, both of which result in a resistance by the tissues to take up insulin and its sugar load from the blood.** As this condition continues for a period of time, it then progresses into Type II Adult Onset Diabetes wherein there is an inability to remove sugar from the blood to such an extent that it reaches sugar diabetic status.

Diabetes is a condition in which the sugar in the blood, known as blood glucose, is consistently above a healthy and normal level. When this occurs over a prolonged period of time, a great many problems develop. **Among them is an increase in blood fats that eventually blocks the flow of arterial blood to the extremities and the small capillaries of the eyes, ears and brain. This leads to obesity, cancer, heart attacks, strokes, blindness, loss of hearing, mental confusion and even gangrene and loss of limbs.** It is estimated by the governments Centers for Disease Control there are currently 17 million Americans with elevated blood sugar leading to these disease states and that nearly 6 million of these people are totally unaware they have this problem.

Type I diabetes occurs in infancy and youth, due primarily to genetics or pancreatic infection. Once the only identifiable disturbance of sugar metabolism in the U.S., it is now the one which occurs the least. It occurs rarely and is virtually the only form of diabetes found in third world countries lacking the diets high in refined carbohydrate that are found in the so-called advanced industrialized nations.

The three major categories of abnormal blood sugar metabolism accounting for over 90% of all cases are: Hypoglycemia, Syndrome X, and Adult Onset Type II Diabetes. While each condition has its own unique set of identifying features and problems, ***they all share one key and major problem that involve the lack of methyl groups in order to allow blood sugar metabolism to occur correctly.*** Thus while not the total solution to these problems, **supplements of a methyl group donor such as DMG and the essential enabling nutrient co-enzyme factors can eliminate these problems when dealt with in the early stages, and can greatly relieve complications in the later stages.**

The key problem is something called the mitochondria. In every cell there are tiny little energy factories called mitochondria that convert sugar and/or fatty acids into a molecule known as ATP (adenosine triphosphate), which is the actual form of energy used by the body to perform all of its functions. Some cells will have hundreds of these factories, and some like the heart muscle cells which have to work hard all the time, will have over 2,000 per cell. The mitochondria take sugar and or fatty acids, and using oxygen puts them through a complex biochemical process that produces ATP energy

International Institute of Nutritional Research

Activator Product Overview

molecules. *This process requires lots of methyl groups and the cofactor nutrients that allow them to be used. If any of them are missing, the production of ATP energy will fall off sharply.*

In the early stages of a high refined carbohydrate intake, the mitochondria are very effective at taking all of that sugar and making ATP energy molecules out of it. They are so good at it they create massive amounts of energy and drop the blood glucose quickly. The individual soon learns that in order to have all this wonderful abundant energy, all they have to do is make sure they have lots of refined carbohydrates in their diet. This is the hypoglycemia stage.

Unfortunately ***diets that are high in refined carbohydrates are also low in methyl groups and low in the nutrients required to use them.*** Hence, individuals with a high demand for energy in their work or lifestyle who are on high refined carbohydrate diets, become depleted of the very nutrients required to handle energy creation from that type of food. When this happens, *the mitochondria are forced to stop creating energy by burning sugar and oxygen, and switch to the highly inefficient process of fermenting lactic acid for energy creation. Then the cell, which has no need for the sugar that is in the blood, begins to resist the attempts of insulin to shove it into the cell.* Now we have switched from Hypoglycemia to Syndrome X.

If the individual continues on with the same high refined carbohydrate diet, the insulin resistance will turn into an ever rising amount of glucose in the blood because the mitochondria of the cells are now so depleted of methyl groups and cofactor nutrients that the energy creation process within the cell using oxygen and sugar is greatly reduced. The excess sugar is now converted to triglyceride and cholesterol that reaches dangerous levels in the blood and tissues. An ever-increasing amount of lactic acid is produced in the fermentation energy cycle causing an ever-increasing amount of pain from the lactic acid accumulating in the muscles and joints.

This individual is now a diabetic primed to develop cancer, or a heart attack or stroke, or lose a leg to gangrene. ***All because the high refined carbohydrate diet is so low on methyl groups and cofactor nutrients it cannot supply what is needed to sustain energy creation from all the sugar the diet is forcing into the mitochondria of the cells.***

Dr. Jerzy Meduski demonstrated through his research at the University of California, San Diego that when rats were placed in a closed container with reduced oxygen availability, their mitochondria could not produce adequate energy through the normal sugar/oxygen energy cycle. As a result their cells were forced to switch to fermentation as an energy source in an attempt to stay alive. This caused their body tissues to experience a rapid build up of lactic acid. However, ***other rats undergoing the same exact oxygen depletion were also given DMG supplements. Their ability to have sugar/oxygen respiration for the creation of energy in their mitochondria remained normal and there was no build up of lactic acid in their body.***³⁷

Research by Drs. Schlenk and Stanley demonstrated that a lack of sufficient methyl groups available to the cells, resulted in a significant decrease in the sugar/oxygen energy cycle and a corresponding increase in lactic acid production as the mitochondria were forced to switch to a fermentation cycle for the creation of energy. *They found that when sufficient methyl groups were made available to the cells from sources such as DMG,*

International Institute of Nutritional Research

Activator Product Overview

there was a normalization of the sugar/oxygen energy cycle in the mitochondria and an elimination of the lactic acid buildup.³⁸

Lactic acid build up in the body is an indication that the mitochondria are being forced to create more energy than they have the required nutrient factors for operating the sugar/oxygen respiration cycle. This is seen not only in those who have developed sugar metabolism problems as a result of highly refined carbohydrate diets, it is also seen in the muscle tissue of racing dogs, horses and human athletes. Once they have pushed their tissues to produce energy beyond the level of available methyl groups their mitochondria switch to fermentation for a source of energy, then there is a rapid decline in performance and there is a build up of lactic acid.

However, when these racing dogs, horses or trained athletes are given supplements of DMG there is both *an increase in their performance ability*, which is dramatically increased the longer the performance must be sustained, while at the same time there is *not a significant build up of lactic acid*. A study published in a 1982 issue of Equine Practice Journal by Drs. Myre and Grey gives the results of their giving DMG supplements to one group of race horses and none to another group. The horses were exercised on a treadmill of specific lengths of time, those horses given 1.6 mg of DMG per kilogram of body weight exhibited *a five fold decrease* in lactic acid in their tissues versus those which were exercised the same amount and not given DMG. *Clearly showing the remarkable increase in their body's ability to use oxygen and sugar in the energy respiration cycle.*³⁹

The Russians had learned this secret back in the 1960's and by giving their athletes a rich source of DMG, they were able to sweep the 1968 Olympics setting new records. In 1980, Dr. Thomas V. Pipes a physiologist at the Institute of Human Fitness conducted a controlled double blind study in which half the athletes were given DMG and the others were given a look alike placebo. The athletes were then placed on an exercise treadmill where they ran to exhaustion. ***He found that the energy respiration cycle of those athletes taking the DMG was able to utilize 27.5% more oxygen and increase their exercise time by 23.6% over those not receiving the DMG.***⁴⁰

In 1981 at the University of Bridgeport, Drs. M. Autuori & M. Rancho took a group of mice from a strain that were all diabetic. They had the same diabetic laboratory and physiological characteristics as a human diabetic. They were divided into two equal groups with the same diet and environmental conditions. One group was given plain water to drink, and the other group had DMG added to their water. Incredibly, even though these mice had a genetically impaired glucose metabolism, ***those on the DMG supplemented water experienced an average 20% improvement in their sugar/oxygen respiration cycle as indicated by a reduction in their blood glucose level versus the mice not given the DMG.***⁴¹

Previous to this, in 1967 Dr. Y. Shpirt working in a hospital in Moscow, Russia gave some of his diabetic patients supplements of calcium pangamate (a source of DMG). He found that *in all cases, those who received the DMG supplement saw an improvement of their diabetic condition.* Those with moderate diabetes were able to eliminate sugar in the urine and see their blood sugar return to normal without the use of insulin. Those who did not receive the DMG saw no improvement in their condition.⁴²

International Institute of Nutritional Research

Activator Product Overview

In his book “*Building Wellness with DMG*”, Dr. Kendall shares letters from diabetics describing the many benefits to their health which has come to them after taking supplements of DMG; everything from improved blood glucose levels, to improved circulation, and immunity to a reduction in cataract formation. Doctors have also written to describe similar improvements with their patients, as well as improved blood lipid profiles that are often severely out of balance in diabetics.

Obviously those who sincerely wish to eliminate their sugar metabolism problems need to eliminate the refined carbohydrates from their diet. However, it is also equally obvious from the scientific research *into the sugar/oxygen respiration energy cycle of the mitochondria, that a key factor is a lack of methyl groups and the cofactor nutrients* needed to operate that cycle efficiently. Researchers have demonstrated with everything from rabbits, rats, dogs and horses to man, that ***supplements of DMG can increase the performance of that cycle an average of 25%.***

For the individual who is trying to overcome a sugar metabolism problem DMG can be the difference between success and failure, between a stroke or not, between cataracts or clear vision, between taking insulin shots or not, between living and dying. For those in physically demanding sports or hard physical labor, through the use of DMG, they can expect to increase by as much as 25%, their ability to use the oxygen/glucose cycle to create energy, resulting in greater stamina, endurance and performance, and at the same time reduce the accumulation of lactic acid in their body by even more than that. ***For supplying all the nutrients needed to allow adequate methylation to occur in the mitochondria of the cell, which promotes maximum oxygen/glucose utilization for the healthy creation of energy, the Activator formula is the right choice.***

IMMUNE FUNCTION

Without an active immune system we would catch every type of contagious illness that comes along, on the other hand the immune system can be tilted in the other direction and be so overly reactive to everything, including your own body, that life becomes a nightmare. What we all need and want is an immune system that is well balanced, protecting us adequately while at the same time, not attacking us or reacting to every spec of pollen that comes our way.

The immune system is divided into two forms of defense. One is called “cellular” immunity. It is basically made up of the T lymphocytes (thymus activated white blood cells) that are the guardians of our immunity, and the cytokins that they produce. The second is called “humoral”. It is basically made up of the B lymphocytes (white blood cells direct from Bone marrow) that are the producers of our immunoglobulins (antibodies) and the chemicals (interleukins) that activate them. ***Both of these divisions of the immune system rely heavily on methyl groups to activate their various components.***

At the Medical University of South Carolina in 1978, Dr. Charles Graber, a professor of Immunology read an article published by Russian scientists showing that calcium pangamate given to guinea pigs protected their immune system from radiation damage. He knew that Dr. Roger Kendall had done research on this nutrient and called to see if he could get some. Dr. Kendall told him he did not have any, but his research had found that the real active ingredient in calcium pangamate was DMG and he could send him some.

International Institute of Nutritional Research

Activator Product Overview

Armed with some DMG, Dr. Graber began testing it by measuring the antibody level of rabbits, and then injecting them with typhoid vaccine. He then divided the rabbits into two groups, with one group given DMG supplements, while the other group did not get it. When he measured the immune response of the rabbits to the vaccine two months later, the results were amazing. *Those taking the DMG produced over three times as many antibodies to the vaccine as those without it. In other words, DMG provided a boost of over 300% to the immune system of those rabbits who got it, versus those who did not.*⁴³

Dr. Graber was so encouraged by this response in the rabbits, he immediately began testing it with humans. He did this by randomly dividing people who were getting routine vaccinations at the Hospital into two groups. One group of these patients was given DMG, and the other group was not. Every parameter of their immune system was measured before the vaccine, and then a couple of months later. ***Those receiving the DMG had a 400% greater increase in their production of protective antibodies in response to the vaccine, versus those who had not received the DMG.*** Dr. Graber found that the DMG patients had an increase in both the humoral and cellular immune responses. There was increased antibodies and interleukins from the B cells on the humoral side, and there was an increase in T cells and cytokins on the cellular side. He reported his findings in 1981 in the Journal of Infectious Diseases.⁴⁴

Since it has been known for over 20 years that DMG will increase the response of the immune system by as much as 400% when exposed to a vaccine or a pathogenic organism, it makes you wonder, why when children are vaccinated, or anyone requires antibiotics they are not also immediately placed on DMG to significantly improve their protective response.

Further research by Dr. Graber focused on the body's ability to produce T cells, the primary guardians of our immunity. This study compared the blood of 75 people that had taken DMG supplements versus the blood of those who had not. When individuals taking DMG were exposed to an antigen *they greatly increased the number of T cells produced in response, over those who did not receive the DMG.* The most significant finding was that ***this response was seen even with people who were immuno-compromised due to severe diabetes and sickle cell anemia.***⁴⁵

By 1985 research on DMG and the immune system was being carried out by Dr. John Lawson of Clemson University. Dr. Lawson's research focused on measuring the ability of the immune system to increase the various components of the immune response. His research verified all of the findings of Dr. Graber, and then went on to discover that not only was there a significant T cells increase for those on DMG, but *there was also a very large increase in their production of Interferon, a key cytokine that is an important anti-tumor and anti-viral agent.* But that was not all. In addition Dr. Lawson found that DMG supplements *also increased the production of Tumor Necrosis Factor-alpha, which is a vital immune factor in destroying cancer cells.*⁴⁶

In this day and age when we hear so much about the danger of terrorists using anthrax as a bio-weapon it is interesting to note that the U.S. Army recently tested DMG and a human anthrax vaccine given to guinea pigs. The study was conducted at the Medical Institute of Infectious Diseases at Ft. Detrick, Maryland by Dr. Bruce Ivins. Half of the animals were given DMG and half were not. *Of those not receiving DMG, 44% died, while all of the animals given the DMG lived.* In addition they all showed a remarkably

International Institute of Nutritional Research

Activator Product Overview

improved immune response over those that did not receive the DMG. *The response of both the humoral and cellular aspects of the immune system were substantially improved for those getting the supplements of DMG.*⁴⁷ Clearly, there is a message here for all of us living in these uncertain times when pathogenic organisms could be unleashed upon us as a weapon of mass destruction without warning, - ***taking regular supplements of DMG would afford us the best possible protection.***

Herpes is a family of viruses, where at least one member seems to afflict everyone on earth. It is estimated that nearly 90% of all people have had some form of mononucleosis because they have antibodies to it in their blood. Nearly 85% of these cases were caused by the Epstein-Barr virus, and the other 15% were caused by the cytomegalovirus; both of these are members of the herpes family of viruses. Cold sores or fever blisters and genital blisters are also caused by herpes virus. The worst of the herpes viruses is known as HHV-6 (human herpes virus #6). It is still being researched, but the findings are striking terror into the hearts of researchers. What is known about the entire herpes family of viruses is that *your best defense against them, and your best chance of overcoming them, is your own immune system.* The good news is that two medical research reports published in 2000, one by Dr. L. Pickering and one by Dr. R. Schooley reveals ***that supplements of DMG are effective at boosting the immune systems ability to repel these viruses.***^{48- 49}

One of the scourges of our times is the epidemic of mostly hidden intestinal infections of an overgrowth of the yeast *Candida albicans*. This produces all kinds of allergies to various foods as well as seriously disrupting blood sugar metabolism. It has come into such prominence because of the overuse of antibiotics that kill off the beneficial intestinal bacteria that normally keep this yeast in check. Once established, it is very difficult to detect and or to eradicate. In his wonderful book, Dr. Kendall reports that in addition to its other immune boosting properties, ***DMG is an effective anti-fungal agent.*** ⁵⁰

In my research of this nutrient I found it fascinating that in the year 2000, Drs. K. Hariganih & J. Prathiba reported the results of their research using DMG as an agent that is *as effective as the drug famotidine (Pepcid A-C) in controlling stomach ulcers.* This study found DMG eliminated ulcer problems caused by stress, and such irritants as the drug ibuprofen. The researchers stated they thought it would be *just as effective in preventing and correcting ulcers caused by the Helicobacter pylori bacteria, as well as other NSAIDs (Non Steroid Anti Inflammatory Drugs) in addition to ibuprofen.* ⁵¹

Considering the scientifically proven benefits to the immune system provided by supplements of DMG alone, it is not difficult to imagine that ***by using a supplement such as the Activator formula that also includes all of the co-factors for its full utilization in the body, that the results would be even superior.***

MENTAL ACUITY - MOOD DISORDERS - SEX

As the old joke goes – “Of all the things I miss, I miss my mind the most.” More and more the public is being made aware as the Baby Boomers are starting to age, that with age, all too often there is also a loss of mental acuity. The death of President Ronald Reagan with Alzheimer’s really brought that message home to all Americans. It is something none of us worry about when we are young, but when we hit our mid forties

International Institute of Nutritional Research

Activator Product Overview

and find ourselves in the parking lot of the shopping mall with no idea where in the world we parked the car, it suddenly dawns on us, ***“It could happen to me!”***

Science does not yet know exactly what is taking place in the brain that leads to memory loss and such severe conditions as Alzheimer’s. We do know that abnormal strands of protein called amyloids form in the brain that causes neurons to pull lose from their normal connections and tangle, thus preventing the nerve impulse from completing its journey to the stored information. We also know that *there is some form of altered oxygen utilization* in the brain of people with memory loss.

Science has clearly shown that without adequate methyl groups, the efficiency of the mitochondria (the cell’s energy factory) to create ATP energy molecules through the oxidation (burning) of glucose, drops off dramatically. ***52 Since brain cells can only create energy though this glucose/oxidation cycle, any loss of methyl groups in brain cells will result in a sharp decline of brain energy and mental function.***

In addition, when this loss is prolonged, for whatever reason, there is an accumulation of lactic acid in the cells, and the mitochondria begin to ferment it into energy. Tragically the lactic acid fermentation cycle does not burn clean. The undesired cellular waste that accumulates is suspected of being one of the causes of amyloid formation that results in the twisted neurons found in the dysfunctional brains of Alzheimer’s patients.

Very few people prior to the age of 40 have arteries so clogged with plaques that the amount of oxygen getting through to their cells is pathogenic. However after the age of 40, the sins of our lifetime diet begin to find us out, and with every passing year, more and more people find their brain does not function nearly as well as it used to. *Most of this reduced brain function is due to blood flow to the brain becoming more and more restricted by arterial plaques. The brain becomes hypoxic, meaning it is low on oxygen.*

We saw earlier that in hypoxic muscle tissue, that performance dropped off dramatically and lactic acid accumulated, yet Dr. Thomas V. Pipes proved that supplements of DMG to human subjects would allow the cells to gain as much as another 25% in oxygen utilization and energy production, without additional oxygen being supplied. ⁵³ In Moscow, Russia, Dr. C. Andreyev and colleagues demonstrated that not only was this true with muscle tissue, but with brain tissue as well. ***When a source of DMG was given to hospitalized patients with hypoxic conditions of the heart and brain, the performance of both of those tissues was restored to near normal.*** ⁵⁴

Not only do supplements of DMG improve brain performance in thinking and recall, but **it also improves mood and emotions.** While part of this can be explained by an improvement in the glucose/oxygen respiration cycle, since we all know that people are in a better mood after they eat and their blood sugar is up, there is more to it than that. One of the major problems with the Autistic children we discussed earlier is that they have severe emotional dysfunction that prevents them from feeling love and affection. Yet when they are given supplements of DMG, in at least half the cases, all aspects of their condition improves, ***including their ability to connect emotionally and develop feelings.***

The brain operates on biochemical messengers known as neurotransmitters, and we discussed some of them earlier. Almost all of them require methyl groups being attached to them at some point in their production, and without them, they do not do their job. When it comes to mood and emotion, and the feelings of love and attachment, these are

International Institute of Nutritional Research

Activator Product Overview

developed in a section of the brain known as the Limbic System. To get there you have to have an adequate amount of the neurotransmitters that take thoughts as nerve impulses to that section of the brain in order to engage it. When DMG responsive autistic children begin to blossom, *they not only speak and calm down, they also begin to relate and develop feelings of love and attachment because the now methylated neurotransmitters are getting through to this section of the brain.*

The well-known supplement SAM-e has been known in the psychiatric community of Europe for more than 20 years as an excellent mood and emotion stabilizer and enhancer. *It is also known to do its job by methylating the neurotransmitters that activate the Limbic System of the brain.* Actually it is the number one methylating compound in the entire body, and so the body can make all of it that it wants. No need to supplement. But, there is a problem. *If there are not enough methyl groups or co-factors being supplied from the diet, the SAM-e formation cannot be completed and it cannot do its job. **Where does SAM-e get its methyl groups? Why from DMG of course.*** 55

Many autistic children also have a problem with having seizures as do epileptics. It is interesting to note that *autistic children responsive to DMG also stop having seizures.* For many years as a physician I achieved success in controlling seizures with many epileptic patients with supplements of Vitamin B-6 and Magnesium. Today I realize that these are the cofactors needed to attach methyl groups to the neurotransmitters that go to the area of the brain that is involved with seizures, and restore calm. In 1982 Drs. Roach and Carlin, reported that *their use of DMG with epileptic patients was effective in gaining control over their seizures* 56 and then again in 1989 Dr. G. Gascon and associates reported *they had obtained the same results.* 57

Since the arrival of Viagra, much has been made of the fact that as men age, they lose more than just their hair, they also lose much of their ability to perform sexually. A variety of drugs have stepped up to offer a solution. The amino acid arginine has been found to be very effective in aiding older men to have a sustained erection. However, many older men complain of lost drive and satisfaction with sex. *This decline is directly associated with a loss of ability to connect to the limbic system in the brain, not perhaps as seriously as with autistic children, but along similar lines.* Dr. Howard Lutz, director of the Institute of Preventive Medicine has found that ***when giving DMG to older men they quite universally report a significant improvement in their level of sexual desire and satisfaction.*** 58

RHEUMATOID ARTHRITIS – LUPUS

Approximately 2.1 million Americans have rheumatoid arthritis, a condition where, depending upon a number of factors ranging from diet to the weather, the immune system is temporarily identifying certain aspects of one or more joints as being foreign tissue that needs to be attacked. In attacking these misidentified joints the immune system produces many types of chemicals that create inflammation in the joints that leads to what can be very sharp and immobilizing pain.

As we have previously identified, methyl groups are key elements in assisting the various immune factors in functioning at their optimum level. We generally think of this as improving their attack on enemy pathogens, which they do. However, they also improve the ability of these same immune factors to tell the difference between our own

International Institute of Nutritional Research

Activator Product Overview

body, and that of foreign antigens. Hence DMG supplements have also been shown to both prevent and reduce these attacks upon our body by our own immune system.

Dr. Rover Kendall and Dr. John Lawson used rats bred to develop rheumatoid arthritis and then gave one group of rats DMG and the other a placebo. The rats getting the DMG had a higher blood level of IgG and IgM antibodies than those not receiving it. **A full 70% of the DMG rats did not get arthritis, while all of the rats without the DMG did get arthritis, and of those DMG rats that did get arthritis it was far less severe.**⁵⁹ A similar beneficial response was seen when rats bred to develop Lupus were given DMG.⁶⁰ Doctors and patients alike have reported the prevention and improvement in their long standing asthma, hay fever and a wide variety of other allergic reactions after using DMG.

ACTIVATOR FORMULA

This formula contains 400 mg. of dimethylglycine per capsule along with all of the essential co-factor nutrients that will allow the human body to complete the process of transmethylation required by the more than one billion biochemical process requiring methyl groups every second, in order to provide abundant energy and good health. Suggested use for maintaining health is 1 to 2 capsules per day taken between meals.

Up to 2,400 mg of DMG per day have been used for health rebuilding.