

# Optimize Performance, Endurance, Immunity and Stress Management

## Race Horses and Athletes Don't "Fade in the Stretch" with DMG

DMG (N-N-Dimethylglycine) is an extremely valuable anti-stress nutrient, ergogenic food factor and pro-oxygen nutrient that can enhance both physical and mental performance. For years it has been used by veterinarians and horse trainers for optimizing endurance and stamina. It reduces pre-race stress, improves racing speed and gives greater endurance.<sup>(1)</sup>

DMG functions by increasing oxygen utilization and retarding lactic acid buildup. The buildup of lactic acid is responsible for muscle fatigue which

**DMG**  
*Hypoallergenic Pure N-N-Dimethylglycine*

Product No. 167      Fill Size: 60 Tablets

Each foil wrapped tablet contains 125 mg. of pure N-N-Dimethylglycine

**Recommended Use:** One tablet twice daily.

causes runners, both human and animal, to "fade in the home stretch."<sup>(1)</sup>

Tested on college athletes, DMG increased maximum oxygen absorption 27%. Athletes taking DMG had a 23.6% increase over placebo controls in length of exercise time before exhaustion.<sup>(1)</sup>

## DMG Effects Both Humoral and Cell-Mediated Immune Response to Restore and Potentiate Immunity

Research has shown that DMG increases antibody production in human volunteers after they are challenged with a vaccine. Both their antibody response and cellular immunity limbs of the immune system were stimulated. B cells are stimulated to produce higher antibody responses (humoral branch). Plus T cells and macrophages are potentiated (cellular immunity branch).<sup>(1,2,3)</sup>

A double blind study with 20 human volunteers showed a fourfold increase in antibody response to pneumococcal vaccine in those receiving DMG orally as compared with controls. Those taking DMG also had a significantly higher mean response of leukocyte inhibition factor to streptokinase-streptodornase and to pneumococcal antigens after immunization with the vaccine.<sup>(1,2,3)</sup>

In another experiment, in vitro responses of lymphocytes taken from patients with diabetes and those with sickle cell disease to three mitogens (PHA, Con A and pokeweed) were increased 300% after DMG was added. These results suggest that DMG produces more than immune restoration — it brings on immune potentiation.<sup>(1,2,3)</sup>

A series of animal experiments using rabbits demonstrated that DMG produced:

- An increase of 300-500% in antibody activity as compared to controls.
- Measurable increases in T cell proliferation.
- Doubling of interferon production.
- Possible antiviral activity.

The rabbits were tested with typhoid and influenza antigens.<sup>(1,2)</sup>

An earlier Russian study reported restoration of immune response in X-irradiated animals (rabbits and guinea pigs) after DMG treatment. The DMG treated animals responded to Brucella vaccine. Controls did not.<sup>(2,4)</sup>

## DMG Improves Cardiovascular Health and Stress Management

DMG is not classified as a vitamin in that it has not been found essential in the diet for prevention of a deficiency disease. Rather, it is an accessory food factor, or metabolic enhancer, necessary for optimum health and the prevention of stress related syndromes.<sup>(2)</sup>

DMG acts as a probable homeostatic agent that can normalize the negative effects of stress, which may include neutralization of free radicals in the body.<sup>(2)</sup> Fatigue is less intense and the time taken to return to normal condition is shorter. The same effect seen in race horses is known to occur for executives, career women, athletes and other active people.<sup>(1)</sup>

Heart disease, high blood pressure, high blood cholesterol and other troubles put a great deal of stress on the cardiovascular system. A clinical evaluation of DMG using over 400 geriatric patients showed a positive correlation between

(over)

## DMG and improvement in the heart and blood circulatory system.<sup>(2)</sup>

The patients taking DMG, almost universally, experienced such favorable reactions as:

- Uplifted feelings of well-being, vitality and mobility.
- Overall improvement in circulation as measured by the Doppler method.
- Decrease in elevated serum cholesterol levels
- Reduction or elimination of pain in those with stable angina pectoris.
- Fewer recurrences for patients suffering from cardiac arrhythmias.
- Decrease in blood pressure for those with hypertension.
- Improvement in heart response in patients undergoing exercise stress tests.
- Elevated systolic blood pressure was reduced from a high of 98 to levels of 85 to 88.
- Lowered average triglyceride levels from 200 to 110 mg.

## **DMG and Pangamic Acid: Confusion in Early Research**

N,N-Dimethylglycine constitutes the active part of a synthetic compound called Pangamic Acid which was first reported on by Krebs in 1951. Although research goes back to 1941 and earlier, it was in the 1960's and 70's that the Russians published extensive work on the calcium salt of Pangamic Acid. Believing it to be a vitamin, they called it vitamin B-15.

As reported in the American patent issued to the Soviet researchers, Bukin and Garkina, the Calcium Pangamate formula is based on N,N-Dimethylglycine and also contains free DMG as well.

Pangamate is simply a synthetic carrier for DMG. Unfortunately much of the Russian research incorrectly referred to Pangamate as being the active, naturally occurring substrate instead of Di-

Both the DMG treated group and controls were also on a prescribed program of diet and exercise.<sup>(1,2)</sup>

The increase of available oxygen in their tissues produced a drop in the blood pressure readings of a group of hypertensive patients and brought their pressure readings down into the normal range. At the same time there was a notable improvement in their mental and physical performance as a result of taking DMG.<sup>(1)</sup>

Over the past few years DMG has been used in the U.S. and the Soviet Union as a nutritional adjunct in the treatment of cardiovascular disease, diabetes, allergies, chronic fatigue, emphysema and other respiratory problems, liver disorders, alcoholism, immune response deficiencies and sports practice. A number of doctors are having some success using a combination of DMG, Coenzyme Q<sub>10</sub> and organic Germanium for treatment of viral conditions such as Epstein-Barr virus and Cytomegalovirus.<sup>(2)</sup>

methylglycine (DMG). This has caused decades of confusion in the scientific literature.

The Soviet research on their DMG based formula demonstrated three basic properties:

- A lipotropic effect due to the presence of labile methyl groups.
- Stimulation of the oxidative metabolism of tissues.
- A detoxifying capacity.

Studies done in America with DMG support many of the findings of the earlier work done in Russia.

**WARNING:** This information is provided for health care professionals only. **This publication and the product contained herein have not been approved or evaluated by the Food and Drug Administration. This publication, and the product contained herein are not intended to diagnose, treat, cure or prevent any disease.** The product relates to nutritional support only.

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