

# DMG – the metabolic enhancer

By Marcus Webb

Many nutrients get ‘pet names’ attributed to them such as ‘the spark of life’ in the case of co-enzyme Q10 and ‘the sunshine vitamin’ when reading about the many effects of vitamin D. However, when researchers were investigating the biological effects of dimethylglycine (DMG) they were so impressed by its ability to regulate important metabolic pathways it soon became known simply as ‘the metabolic enhancer’ by the team working on it at the University of



Southern California in America. Despite gaining this catchy title in the 80's DMG's metabolic actions were already well documented in published studies dating back to 1958 where its conversion within the liver to many different substances that then become intimately involved in numerous diverse processes that regulate everything from heart health through to cellular energy production, oxygen utilisation and improving mental clarity and easing lethargy. With so many apparently diverse actions, its rather appropriate description as a metabolic enhancer becomes apparent.

## DMG and the heart

Much has been written on the potential adverse effects of a substance known as homocysteine when it comes to heart and circulatory health. Homocysteine is one of those chemicals that appears to increase as we age and looks to be sensitive to dietary changes and other health issues that involve chronic inflammation. While dietary changes are vital and certain B-vitamins such as folic acid help to push it down addressing the metabolic pathways associated with homocysteine production could provide extra help. Studies on the effect of DMG on homocysteine soon demonstrated that it could drive excessive amounts through a specific pathway that converted it into a non-toxic substance. With lower homocysteine levels it is theorised that its damaging effects on the heart and circulatory system are reduced.

## A strengthened immune system

Back in 1978 a team working at the Medical University of South California discovered that DMG could strengthen the immune system but their research was not published until 1981 after they established how it influenced such a complex biological system in more detail. Initially working

with rabbits, the team clearly demonstrated that DMG boosted their B-cell (a type of white blood cell involved in the antibody production) activity while in a second study T-lymphocytes became more active in blood samples taken from 75 human subjects after exposure to DMG. Subsequent tests supported these initial findings and confirmed the potential for DMG to act as an immune regulator especially in cases where the system is under stress such as following vaccinations or viral infections. It has also been suggested that DMG could offer increased resistance to and recovery from infections in those with a weakened immune response.

## Metabolic enhancement

The world of sports medicine has been very busy with DMG research ever since it was discovered that it appeared to enhance physical performance. The value of DMG in boosting performance was related to its ability to improve the use of oxygen within muscle and speed recovery from exertion after strenuous exercise. Athletic (marathon runners) and animal (race horse) studies over the past 20 years show that DMG can help stamina and athletic cardiovascular function. Marathon runners who took a supplement of DMG before a run and smaller doses every 4 miles during their run reported much less exhaustion compared to previous races where DMG was not used. The actual mechanism underlying DMG's ability to improve the use of oxygen by muscle cells, is to this date, unknown. While these studies involved fit athletic subjects the very fact that it positively influenced the key pathways involved with performance, stamina and muscle oxygen use may suggest a potential use in fibromyalgia and CFS sufferers where all these issues are normally a common problem.

## Using DMG supplements

Safety studies indicate DMG to be an extremely safe water soluble food substance, naturally found in cereal grains, seeds, beans and liver. DMG supplements are well absorbed by the digestive tract after which it is metabolised within the liver. Spreading DMG supplements out over the day would appear to offer the optimal support for muscular and energy requirements and is best taken between meals to avoid competitive absorption with other amino acids within the gut following a meal. Supplement doses range from 50mg to 100mg and 125mg capsules or tablets and the manufacturers recommendations should be followed unless otherwise advised. As with most supplements, there have been no definitive studies into the effects of DMG over pregnancy and breastfeeding so its best avoided.

## Resources:

Information site on dimethylglycine [www.dmgdoctor.com](http://www.dmgdoctor.com)  
Supplements available from: [www.nutricentre.com](http://www.nutricentre.com)