

Methylfolate versus Folic Acid. Do you know the difference?

The terms folic acid, folate and vitamin B9 are used interchangeably, but it is actually inaccurate to do so. Folic acid is the synthetic or man-made version of the vitamin folate. Methylfolate (otherwise known as L-methylfolate or L-5THMR) is the natural form of folate.

The translation of an essential public health message to consumers is difficult. Varying levels of understanding of medical terminology and basic science, means it is difficult knowing what level to pitch your public message at. Simple language is used in the attempt to reach mass market, but herein lies the problem. Consumers now ask for 'Folic Acid' instead of the more accurate name of the vitamin, folate. An education is now required on same.

The benefits of taking folate are enormous. It can be used to:

- Treat or prevent folate deficiency anaemia
- Help an unborn baby's brain, skull and spinal cord develop properly during pregnancy
- Help reduce the side effects of methotrexate

There are several times/conditions which occur during the life cycle areas, where it may be important to choose the methylfolate form, as opposed to the synthetic folic acid form. It is important to identify these key times in a busy retail environment.

Conception

Research has shown that a father's folate status before conception may be just as important as the mother's. A folate depleted diet, results in more sperm DNA damage and has an effect on sperm DNA methylation. Folate supplementation can result in decreased sperm DNA damage. However, both high consumption of synthetic folate (in the form of folic acid) and low folate concentrations in the body, seem to be associated with excessive oxidative stress and as such can cause increased cellular apoptosis and seminal DNA damage. Methylfolate may therefore present a safer alternative to synthetic folic acid.

Pregnancy

Pregnancy is a particular time of need for increased folate. Deficiencies of dietary folate can lead to abnormalities in the mother (anaemia, peripheral neuropathy) and the foetus (congenital abnormalities).

The body converts supplemental folic acid to L-methylfolate through a series of enzymatic processes. The final stage is done with the enzyme methyltetrahydrofolate reductase (MTHFR). Those with certain gene polymorphisms have inadequate MTHFR activity. Based on the high prevalence of these genetic polymorphisms and the importance of assuring that pregnant women get adequate folate, supplementation with methylfolate may be the best option to avoid blood folate deficiencies. At present, it is not practical to test every woman to see if they have these polymorphisms, but it is useful to know that approximately 40% of the population have genetic polymorphisms that impair the conversion of supplemental folic acid to its active form, L-methylfolate. In cold retail reality that means 2 in every 5 customers given OTC folic acid cannot convert it effectively.

The benefits of consuming methylfolate also transfer to the mother. Bentley et al (2011) compared consumption of a pre-natal supplement containing

folic acid versus a prenatal containing methylfolate. They demonstrated a significant increase in haemoglobin levels at the end of the second trimester for the women who consumed the methylfolate product.

Depression

Studies have shown a link between folate deficiency and neuropsychiatric disorders. In particular, depressive symptoms are the most common neuropsychiatric manifestation of folate deficiency. Folate levels have been found to be inversely associated with depressive symptoms. Depressed patients with folate deficiency have shown a poorer response to standard treatment with antidepressants. In 2013 Shelton et al., showed that patients who were managed with high dose methylfolate, achieved statistically significant improvements in self-reported depression symptoms and functioning, alongside greater satisfaction with their medication treatment. These improvements were observed across patient groups with varying depression severity levels and across other patient subgroups as well, including patients who reported having depression symptoms for more than 2 years. It can therefore be suggested that folate augmentation during antidepressant treatment, may improve patient outcomes in patients with low plasma or red blood cell folate levels.

Cardiovascular Disease

Several observational studies have raised the question as to whether the relatively low folate levels in the present-day western-style diet, may be contributing to the excess cardiovascular morbidity and mortality in countries such as Ireland. In particular, patients with the MTHFR genetic polymorphism have a 26% higher risk of stroke and a 16% higher risk of coronary heart disease. Overall, the data suggests folate supplementation can lower cardiovascular disease risk, however the use of synthetic folic acid has produced mixed results. It may be hypothesized that methylfolate might be a version of folate that could produce more stable results and may prove to be a better recommendation.

Taking the more bioavailable, natural form of any nutrient guarantees better absorption. More natural forms are inevitably more expensive than the synthetic version, but a cost benefit analysis taking the above information in to account renders the increased price insignificant. The 'take folic acid' message has been useful for general public health and has undoubtedly made a difference, especially in the area of prevention of neural tube defects. Now that science and industry have evolved and options such as methylfolate are available, the responsibility is on pharmacists and general practitioners to identify where methylfolate is a more appropriate, and a more ethical recommendation.

References available upon request



Nutri Nua Methylfolate 400µg
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