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**ISSUE 19**

# **Methylfolate v Folic Acid**

**The superior benefits of Methylfolate**



**FOR PROFESSIONAL USE ONLY**

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## Folic Acid as Methylfolate (5-MTHF)

Methylfolate is emerging as a new and exciting food supplement for anyone who needs to supplement with Folate (Folic Acid). Methylfolate (also known as 5-MTHF and L-Methylfolate) is the most stable, safe and bioeffective form of Folate.<sup>1,2</sup> An adequate intake of Folate is essential for the treatment and prevention of many disorders. Adequate Folate levels are of particular importance for pregnant women and women planning pregnancy. The following are the permitted health claims for Folate/ Folic Acid as approved by EFSA (The European Food Safety Authority):

- Folic Acid contributes to maternal tissue growth during pregnancy
- Folic Acid contributes to normal amino acid synthesis
- Folic Acid contributes to normal blood formation
- Folic Acid contributes to normal homocysteine metabolism
- Folic Acid contributes to normal psychological function
- Folic Acid contributes to the normal function of the immune system
- Folic Acid contributes to the reduction of tiredness and fatigue
- Folic Acid contributes to the process of cell division

## What is Folate?

Folate (Folic Acid) is one of the water-soluble 'B-Complex' vitamins and Folate is necessary for proper brain function as it is concentrated in the spinal and extra cellular fluids. Folic acid plays an important role toward the production of RNA and DNA as it helps in the formation of red blood cells and nucleic acids.

## Sources of Folate and Deficiencies

Folate is derived from the term 'foliage' which indicates where this vitamin is found. Some of the best natural sources of Folic Acid are in green leafy vegetables such as broccoli and spinach. Also in oranges, rice, brewer's yeast, liver sprouts and leafy greens.

Food is the major source of Folates for us. However in a large percentage of the population Folate intake from food is insufficient for good health. And as previously mentioned an adequate intake of Folate is essential.

Although insufficient Folate in the diet is the most common cause of Folate deficiency, too much alcohol and an excess of certain medications such as aspirin and antacids are common causes too as they interfere with the metabolism of Folate in the body. Certain diseases also affect Folate absorption and these include Celiac disease and Crohn's disease. It must also be noted that much folate content in folate rich foods is lost due to food preparation and cooking.

## Methylfolate (5-MTHF)

Methylfolate is the predominant Folate found in such foods as leafy green vegetables and is in a form that can be used directly by the body. This is a natural Folate and very different in structure and function from isolated Folic Acid, the most commonly sold supplemental form, which does not occur naturally in foods.<sup>2</sup>

If our metabolism is working correctly Folic Acid is converted to Methylfolate, (a wholly safe and beneficial nutrient) by our body. But often this process is not efficient and un-metabolised Folic Acid, which is not necessarily beneficial, remains in the body. Many of us have a genetic enzyme deficiency that prevents the efficient conversion of Folate to 5-MTHF (Methylfolate) – the required biologically active form. This enzyme deficiency will also have an impact when we seek to supplement with 'isolated' Folic Acid.<sup>3</sup>

Hence supplementing with Methylfolate may soon become the preferred norm. Methylfolate (5-MTHF) as the bioactive form of Folate raises 'red blood cell folate concentration' as compared with ordinary Folic Acid supplementation. This greater 'bioavailability' is of particular importance to people who have the genetic enzyme deficiency as Methylfolate requires no conversion to become metabolically active.<sup>3,4,5,6</sup>

## Folate and Pregnancy

Folate (Folic Acid) is of particular importance for pregnant women and women planning pregnancy. Folate is vital for the baby during early pregnancy, not only is it needed by the baby for the development of the neural tubes, but also by the mother. Suitable Folate levels contribute to 'normal maternal tissue growth during pregnancy' and The UK Department of Health has stated:

"Women who are planning a pregnancy or might become pregnant, or who are already pregnant, should also take folic acid supplement and vitamin D supplements."

As Methylfolate is the most natural, stable, safe and bioeffective form of Folate (Folic Acid) it is ideal as a supplement for pregnant women and women planning pregnancy; particularly in accordance with the recommendations of the UK Department of Health.<sup>7,8,9</sup>

## Folate and Neural Tube Defects (NTD)

In August 2013 Folate was issued with a further 'favourable opinion' by EFSA (The European Food Safety Authority). Specifically EFSA has issued a favourable opinion on the use of supplemental folate to reduce the risk of neural tube defects (NTD) such as spina bifida and anencephaly in newborn children.<sup>10,11,12</sup>

The favourable opinion for folate by EFSA is the first step in a formal process. Before the claim is fully permitted for use in the EU it has to be agreed by the member states of the European Union, and put into law by the European Commission. The claim wording suggested by EFSA that reflects the scientific evidence is:

"Supplemental folate intake increases maternal folate status. Increasing maternal folate status contributes to the reduction of the risk of NTD."

EFSA concluded that In order to obtain the claimed effect, 400 µg of supplemental Folate should be consumed daily for at least one month before and up to three months after conception.

This likely recommended daily allowance is similar to the UK Department of Health who suggest that all women who could become pregnant should take 400 micrograms of supplemental folic acid prior to conception, and then for the first 12 weeks of pregnancy.

Many experts would recommend that breastfeeding mothers continue with good levels of folate for some time after birth as the nutritional needs of both mother and baby are high. And with preconception planning good nutrition and health will maximise the chances of conception and as the pregnancy may not be immediately known the baby's development is well underway once pregnancy has been confirmed.

## Methylfolate and Homocysteine

Not only does the genetic enzyme deficiency inhibit the conversion of folate to 5-MTHF leaving many vulnerable to low blood folate levels it can also increase 'Homocysteine' levels. Folic Acid has the permitted EFSA health claim of "Folic Acid contributes to normal homocysteine metabolism".

Homocysteine is an amino acid that occurs naturally in the body and elevated levels of Homocysteine have been linked to increased risks of many common disease conditions and specifically cardiovascular diseases..Elevated levels of Homocysteine are commonly caused when insufficient levels of 'methyl group' foods are consumed.<sup>13,14</sup>

## Methylfolate and Psychological Function

Folate has the permitted health claim of 'contributing to normal psychological function' and another important aspect of Methylfolate is that it is able to cross the blood-brain barrier, unlike Folic Acid.<sup>15,16</sup>

This is especially important for people with cognitive difficulties as Methylfolate can enhance the synthesis of acetylcholine in the brain. Acetylcholine is found in the central and peripheral nervous systems and is the most common neurotransmitter,

and the neurotransmitter associated with memory.

Folate also has the permitted health claim of 'contributing to normal homocysteine metabolism and it has been suggested that that people with elevated Homocysteine levels have a greater risk of cognitive decline.<sup>17,18</sup>.

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