

Unlock the fibro brain-fog with acetyl-L-carnitine

By Marcus Webb

There is sometimes no escaping jargon and technical words when discussing the finer points of nutrition and its effects on human metabolism but getting to the heart of understanding the benefit of nutritional therapy means we have no choice! Like so many aspects of fibromyalgia management, defective metabolic pathways appear to need special support but actually getting the right nutrients to the right areas of the body can present a problem. This is highlighted by the problems faced by key nutrients required by the brain and nervous system. Inherent to all humans, the internal brain environment is protected from toxins by a special circulatory system that forms the blood-brain-barrier (BBB). In essence, this is composed of a tightly fitting cell lining within the blood vessels of the brain that does not occur in other regions of the body. The end result is an ingenious way of keeping chemicals and other compounds within the circulation and available to the body but away from the delicate environment of the brain. Getting substances to cross the BBB has presented drug developers with considerable challenges but many naturally occurring nutritional compounds appear not to be affected by this toxin filter. One such nutrient, known as acetyl-L-carnitine (ALC), happily crosses the BBB and has been attracting considerable attention from researchers because of its ability to improve certain aspects of energy metabolism as well as enhancing neurological and brain functions.

Fighting the CFS/FM plague of brain-fog



One of the most difficult aspects of CFS/FM for many people is the issue of brain-fog. So many sufferers experience a severe impairment of their cognitive (thought processing) functions to the point where they fear they are losing their minds. There are as many theories as there are remedies for the brain-fog issue but one theory that looks to stand the test of science relates to an enhancement of the cognitive functions by improving the ability of neurons (nerve and brain cells) to communicate with each other. For this to happen, tiny gaps between nerve cells, known as synapses, require chemical messengers to be released that bridge the gap and facilitate nerve-to-nerve communication. These chemical messengers are called neurotransmitters and the most abundant neurotransmitter in the body is known as acetylcholine (ACh). Because ACh is not exclusively found within the brain it also influences many aspects of nerve and muscle activity as well as organ and blood vessel function. Within the brain itself ACh is a vital neurotransmitter involved in the formation and maintenance of memory and the ability to learn. It has also been associated with influencing maintaining emotional health. Interestingly, ALC is structurally very similar to the body's own ACh and it is known that the neurons that respond to ACh are also

receptive to direct ALC stimulation. Because ALC crosses the BBB its potential to assist brain function is now becoming apparent. Another key aspect of ALC's ability to assist neurological health lies in its ability to supply the required building blocks for ACh production. Supporting this is a controlled study in which 481 elderly people with memory impairment showed improvement after 90 days of 1500mg ALC. While no one is saying that this is a cure for age related memory loss or Alzheimer's, the study did illustrate the ability of ALC to enhance cognitive function, an action that may benefit those with CFS/FM related brain-fog. Keeping in mind the observation highlighted by the CFS/FM expert Dr Jacob Teitelbaum who reported on the discovery of low ALC in the blood and muscle of CFS/FM sufferers by two independent research centers, a case for a trial of ALC supplementation may be reasonable.

Acetyl-L-carnitine vs placebo in managing fibromyalgia symptoms

In the spirit of all good science what people report and what can be proved to actually happen needs testing using a placebo study. In this type of study, a non-active but otherwise identical pill is given to one group while the other group takes the real pill. However, none of the subjects know if they have the 'real deal' or the dummy (placebo) pill!

The study, using 102 patients who met the criteria for being diagnosed as having fibromyalgia, looked at the effects of a course of acetyl-L-carnitine (ALC) over 10 weeks compared to placebo. To establish the effects of ALC the researchers measured tender points and assessed fatigue, depression, sleep and other common FM symptoms using well established and tested questionnaires. At the end of the 10 week trial the total number of tender points had declined significantly along with an improvement in overall pain and mood in the group taking the ALC supplement. In their conclusion, the researchers commented; "The results indicate that ALC may be of benefit in patients with fibromyalgia, providing improvement in pain as well as the general and mental health of these patients."

Intake and safety

From the literature there has been a wide range of intake levels recommended, ranging from 1500mg (500mg taken 3 x day) up to 3000mg (1000mg taken 3 x day) taken in divided doses 2 or 3 times a day. As a supplement it should not be used by anyone taking drugs that alter blood clotting such as warfarin or acenocoumarol. Because of the lack of data ALC can't be recommended during pregnancy or breast feeding and there has been some cautions against using it if you suffer from seizures or take thyroid hormones.

Useful resources:

Low acetyl-L-carnitine in CFS/FM sufferers: http://www.endfatigue.com/health_articles_c/CFS_FM-acetyl-L-carnitine_for_cfs.html

Placebo controlled acetyl-L-carnitine & fibromyalgia study: www.ncbi.nlm.nih.gov/pubmed/17543140

Acetyl-L-Carnitine 500mg (vegetarian formula): http://www.supersupps.com/Acetyl_L_Carnitine_500mg60_Vcaps.asp?cat=0&sub=0&prod=831