

NUTRITIONAL SUPPLEMENTS

Myth or Miracle Cure?

Those who suffer with overwhelming fatigue and many other symptoms of Chronic Fatigue Syndrome (CFS) are understandably keen to find a cure, often willing to pursue any ray of hope, whatever the cost.

Many people try nutritional supplements but is there evidence that these work and what are the risks involved? The constant bombardment of messages about nutrition and health through the media, the internet, advertising, well-meaning friends and so called 'experts' begs the question 'who and what should we believe?'

At the present time anyone, regardless of qualification, can set themselves up, provide dietary or nutritional advice, write books, appear on television and call themselves a 'nutritionist' or an 'expert' and many people have!

However the title Dietitian/ Detician is legally protected and can only be used by those who are Registered Dietitians (RD) with the Health Professions Council.

To be registered, they must now be specifically trained at least up to degree level covering the science of nutrition and dietetics, actively continuing in professional development and working by a strict code of ethical practice. Check your health professional is registered by visiting www.hpcheck.org

To be a Registered Nutritionist (RNutr) or Registered Public Health Nutritionist (RPHNutr) with the Nutrition Society, one must have completed a degree course covering the science of nutrition and demonstrated post-graduate experience in the field.¹

Be wary of the accuracy of information from anyone claiming to be an expert in nutrition,



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who are not registered with these bodies, and have lesser qualifications such as other nutrition courses or diplomas. Also bear in mind that the advice of those who make a profit by selling supplements may be biased.

There are countless theories and ideas about nutritional supplements in chronic fatigue, but most of these are unproven; at best they may work on the off chance and at worst they may in fact do you harm.

For supplements to be proven as effective and safe they need to have undergone *substantial* clinical trials. Unlike drugs, supplements can legally be sold without this testing. It is therefore down to the consumer to make an informed choice. To do this, it is important to understand how to interpret scientific evidence.

What is good science?

Good science, for example, must be based on clinical trials that are:

- Big enough to discount the effect of chance;
- Compared to a placebo, so

that any effect found is a result of the product being tested and not merely the belief in taking a pill.

- Double-blinded, so that no one knows who has taken the supplement and who has taken the placebo.
- Reproducible, such that the same results are seen with subsequent trials.
- Carried out on human subjects. Trials done in the test tube or on mice, while providing a starting point for further investigation, cannot be considered sufficient evidence to treat people.
- Carried out over a long enough period of time to fully assess safety. Just because a nutritional supplement may have been derived from food, it doesn't guarantee its safety, once a substance is extracted and concentrated to levels above that which would normally be provided by the diet it may exert a very different and potentially harmful on the body.

- Unlikely to be biased – consider who is funding the trial or behind promoting a particular supplement and what bearing this might have on the interpretation of results.

Bearing this in mind, let's look at a few supplements commonly used in chronic fatigue and explore the facts behind the often sensational headlines.

Magnesium supplements

Over the years there has also been a lot of interest in Magnesium supplements.

Cox *et al* in 1991 conducted a small clinical trial which did show promising results using intramuscular injections². However subsequent larger, trials have failed to find a deficiency of magnesium in chronic fatigue^{3 4} and as a result the evidence is insufficient to recommend magnesium supplementation. It is important to note that the considered safe level for an oral magnesium supplement is 400mg/d⁵. Magnesium can also interact with some medications.

Evening Primrose Oil

Clinical trials using evening primrose oil have also produced conflicting results and so currently no conclusion of beneficial effects can be drawn.⁶ There have been several reports which describe seizures in individuals taking evening primrose oil, in particular when taking medicines to treat mental illness or undergoing a general anaesthetic⁷ so these supplements should be used with caution and discussed with your GP.

Omega-3 Fish Oil

Results from a clinical trial by Behan *et al* in 1990 using omega-3 fish oil looked promising in alleviating the symptoms of chronic fatigue⁸ but, when Warren *et al* in 1999 conducted another trial to confirm these results, the beneficial effects could not be replicated.⁹ Omega-3 supplements

in doses above 3g per day can increase LDL-cholesterol and also affect blood glucose control in diabetes¹⁰. Also their effect on blood clotting may increase the risk of bleeding if taken with anti-coagulants e.g. warfarin, aspirin and other herbs and supplements e.g. ginkgo biloba. They may also lower blood pressure and add to the effects of blood pressure medication.¹¹ Consult with your GP before taking them.

At lower doses, omega-3 fish oil is known to have a protective effect on the heart and the Food Standards Agency recommends eating fish twice a week, with one of these fish portions being oily, eg sardines, mackerel, trout, salmon, fresh tuna.

More omega-3 is recommended for those who have had a heart attack¹² but, for those who have angina, high intakes are not appropriate.¹³ Vegetarian sources of oils that are converted to omega-3 by the body, eg flaxseed have yet to be proven to have the same health benefit.¹⁴

Vitamin B6

A small study showed that those with chronic fatigue have low levels of vitamin B6,¹⁵ but no trials have proved that supplementation with vitamin B6 is an effective treatment. High doses of vitamin B6 have been associated with nerve damage, although 10mg/day is considered a safe level.¹⁶ Be wary – vitamin B6 may interact with some medication.

Brewers Yeast

Claims that Brewers yeast extract reduces fatigue in CFS are based only on poor clinical evidence¹⁷ or studies done on mice,¹⁸ and so have not been proved to be either effective or safe.

NADH

NADH is a chemical in the body used to make energy in cells so there has been interest in a

possible role for energy provision in chronic fatigue. Claims that NADH is beneficial are based only on small trials so far¹⁹ and results are conflicting.²⁰ Much larger, scientifically validated trials are needed to draw a conclusion.

L-carnitine

L-carnitine is another chemical involved in the production of energy in the cells, so whether those with chronic fatigue have low levels has been investigated, but not all studies show this to be the case²¹.

Supplementing with L-carnitine has produced some positive effects on symptoms but the trial carried out was not placebo-controlled and so more research is needed before this can be proved.²² Also some patients dropped out due to side-effects. Certain drugs will react with L-carnitine so discuss these with your GP.

Multi-nutrients

General multi-nutrient supplements such as multi-vitamins and coenzymes have also been investigated. These studies were reviewed and assessed by Chambers *et al* in 2006²³; none of these showed a beneficial effect and some participants dropped out due to side-effects.

The overall consensus of scientific opinion is that there is contradictory and insufficient evidence that taking any nutritional supplements is of benefit on CFS.^{24 25 26 27}

More research is needed in this area with several, large, randomised, independent placebo-controlled trials being carried out. In the meantime my advice is to eat a healthy, varied and balanced to provide all the nutrients you need.

If you are concerned that your diet is inadequate, a multi-vitamin and mineral supplement where

nutrient values do not exceed 100% of the recommended daily amount (RDA) for adults or Reference Nutrient (RNI) for children is unlikely to cause any harm; but high dose supplements of single nutrients should only be taken under the advice of a GP when a clinical deficiency has been diagnosed.

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