

## THE VEGETARIAN SOCIETY

# OMEGA 3 FATS

So how does current government advice that “we” should try to eat at least two servings of fish a week, including one serving of oily fish, as part of a healthy balanced diet translate into dietary advice for vegetarians? And what should you do if your GP suggests fish oils for creaking joints or to thin your blood? Well, the first thing to remember is that the vegetarian diet is widely recognised as being protective against heart disease, the main ailment that the advice is aimed at, so vegetarians have a head start already, and of course the general population don't exactly eat much oily fish, or indeed offal, the other “good” source of omega 3 fats.

To begin with we must distinguish between the two polyunsaturated fatty acids which are termed essential because they can not be made in the body and therefore must be present in the diet. They are linoleic acid (LA), an omega 6 fat, which is widely available in a vegetarian diet, being present in large quantities in most oils and other vegetable based fatty foods, and alpha-linolenic acid (ALA), an omega 3 fat, which is not so widely available in a vegetarian diet, and is generally considered to be the more beneficial of the two EFAs.

Alpha-linolenic acid is what is known as an omega 3 fat, and is a precursor of the longer chain omega 3 fats eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) - ie EPA and to a lesser extent DHA can be made in the body from ALA. These two fatty acids are the ones available in significant amounts in oily fish, and fish oil supplements. All three omega 3 fats have been shown to

offer numerous physiological benefits, notably their anti-inflammatory properties and their ability to offer cardioprotective effects especially in people with pre-existing cardiovascular problems, though EPA and DHA are more potent than simple ALA.

Generally, vegetarian, and especially vegan, diets are relatively low in ALA compared with LA, and provide little EPA and DHA directly (though a certain amount of DHA is found in eggs, especially from hens fed on flax seeds or algae), and tissue levels of long chain omega 3 fatty acids have been shown to be relatively low in vegetarians and vegans, even though ALA intake varies little across vegans, vegetarians and omnivores.

Taking an overview of the various fatty acids intake recommendations worldwide, and the confounding factors surrounding the common vegetarian diet, leads to a conclusion that an ALA intake of 1.5% of total energy is optimum for vegetarians – or roughly 4g a day. This should provide enough of the parent omega 3 fat to ensure significant amounts of EPA and DHA are formed by the body (conversion rates are around 5-10% for EPA and 2-5% for DHA). However it is also important for vegetarians to ensure that their intake of LA is not too high compared with ALA since a higher intake of LA interferes with the process in which the human body converts ALA into the even more beneficial EPA and DHA, so a LA to ALA ratio of around 4 to 1 or slightly lower is considered to be the optimum, but any steps to bring down an excessively high amount of omega 6 fats in the diet would be beneficial.

Flaxseed oil, 1 tablespoon (14g) provides 8.0 g of ALA and relatively insignificant levels of LA

Flaxseed, ground, 1 tablespoon (24g) provides 3.8 g of ALA

Rape Seed oil, 1 tablespoon (14g) provides 1.6 g of ALA, and only twice as much LA

Walnuts, 1 oz (28g) provides 2.6 g of ALA, but also four times as much LA

Tofu, 4.5 oz (126g) provides 0.7 g of ALA, but also seven times as much LA

## **Practical steps**

There are a number of steps to take to ensure that the optimum levels of all the omega 3 fats are present in the body.

**1.** Make sure you include a good source of ALA in your diet, the simplest source would be one teaspoon of flax seed oil a day, taken either on its own or mixed into dressings etc. Flax oil is also available in vegetable capsules. Alternately include 4 to 5 teaspoons of ground flax seeds, or rape seed oil in your diet – though do not heat any of the oils, and only add the flax seeds to any foods at a late stage since heating will destabilise the ALA. It is important that the flax seeds are ground or at least crushed, if left whole much of the fat will be unavailable.

**2.** Replace fats high in omega 6 oils, such as sunflower oil or corn oil, with fats higher in monounsaturated fats, such as olive oil or rape seed oil which do not disrupt the formation of EPA and DHA.

**3.** Other foods can add to your intake of ALA. Most of the little fat in leafy green vegetables is ALA – broccoli has 0.13g per 100g, cabbage 0.11g per 100g, so simply eating your greens is making a positive addition to your intake. Walnuts are and tofu are also good sources but are comparably high in LA.

Pregnant or nursing mothers who are uncertain whether their diet is providing enough omega 3 fats may wish to consider supplementing their diet with a direct source of DHA since this appears to play an important part in the development of immature brains. DHA supplements derived from algae and encased in non gelatine capsules are now available. It has also been suggested that DHA supplements may be of help to children with certain behavioral or learning difficulties.