Omega-3s to enter weight loss category?

25/01/2005 **- Emerging research looks set to position omega-3 fatty acids as a new ingredient for weight loss foods and supplements, *reports Dominique Patton*.**

There is already evidence to link consumption of seafood with reduced risk of weight gain but there has been little knowledge so far about how this effect is produced.

New studies carried out by one of the top three omega-3 suppliers, Pronova Biocare, have identified a potential mechanism for the weight reduction effect of fish-derived omega-3 fatty acids in mice.

The company, which will patent the findings on its concentrated DHA/EPA combination, says that a human trial underway in the Czech Republic may confirm the animal results in the coming months.

"No mechanisms have been suggested for this effect to my knowledge. This is very new," Morten Bryhn, director of research and development for Pronova Biocare, told NutraIngredients.com.

Researchers from the company and colleagues at Charles University and the Academy of Sciences of the Czech Republic in Prague report on their results in the December issue of *Lipids* (vol 39, pp 1177-1185).

They showed that a 60 per cent omega-3 concentrate, containing 50 per cent docosahexaenoic acid and 10 per cent EPA (known as EPAX 1050 TG) increased oxidation of fat by activating genes that break down fat in the mitochondriae and peroxisomes.

The fish oil concentrates not only caused weight reduction in the mice but they also appeared to stop the animals from gaining weight when given free access to food.

Additionally, the omega-3 concentrate reduced the number of fat cells, especially in the abdominal region.

These effects were increased in animals that were put on a 10 per cent calorie reduction regime.

The regimen was previously tested in a pilot study, presented at the North American Association for Study of Obesity (NAASO) meeting in November (abstract no 249-P). It involved 20 women with severe obesity (body mass index of more than 40) who were already on a very low calorie diet.

The group given the omega-3 concentrate reduced their weight by 20 per cent more than the placebo group after only three weeks of treatment (7.55 kg compared to 6.07kg in the placebo group). BMI was reduced by as much as 15 per cent, says Pronova.

The firm has now initiated a larger study of 30 obese women to confirm these findings. The trial, as well as the previous pilot trial, will also give researchers the chance to check the mechanism identified in mice by analyzing biopsies of fat tissue taken from the patients.

"We are planning to present these results at Vitafoods in May," Dr Bryn said.

"Most products in this area make a lot of promises for fast weight loss. But this really targets the mechanism behind weight gain and offers the possibility for weight loss," he added.

Being overweight is not only a problem of too much food and too little exercise but also a problem of bombarding genes with signals leading to fat accumulation, explained Dr Bryn.

"A diet rich in red meat and vegetable oils increases accumulation of fat in fat tissue because of a chronic disarray of genes responsible for handling fatty acids and carbohydrates."

He explained that the number of fat cells increases, boosting the turnover of carbohydrates into fat. The resulting overweight or obesity is difficult to curb by calorie reduction and exercise only.

"Genes are constantly programmed to a situation of starvation and they need to be reprogrammed. Omega-3 fatty acids from seafood seem to do exactly that," added Dr Bryhn.

The findings support yet another benefit from omega-3 fatty acids, already being added to foods designed to improve heart health.

The weight loss category of foods and supplements is currently booming (worth more than $3 billion per year in the US) based on rising numbers of overweight people around the world. It is set to grow even faster in coming years as increasing numbers of children are already overweight.

Experts estimate that almost 25 per cent of children in the EU are now obese, with about 400,000 becoming either obese or overweight every year.

However Dr Bryhn claims that Pronova products will not "*produce a dramatic effect, but should be marketed with a reasonable type of weight control diet*".

Omega-3 fatty acids could be at an advantage over some other weight loss ingredients because of their long, safe history of therapeutic use. Some products have been patented for use in pharmaceuticals targeting specific health conditions or diseases and there are hundreds of clinical trials backing their safety.